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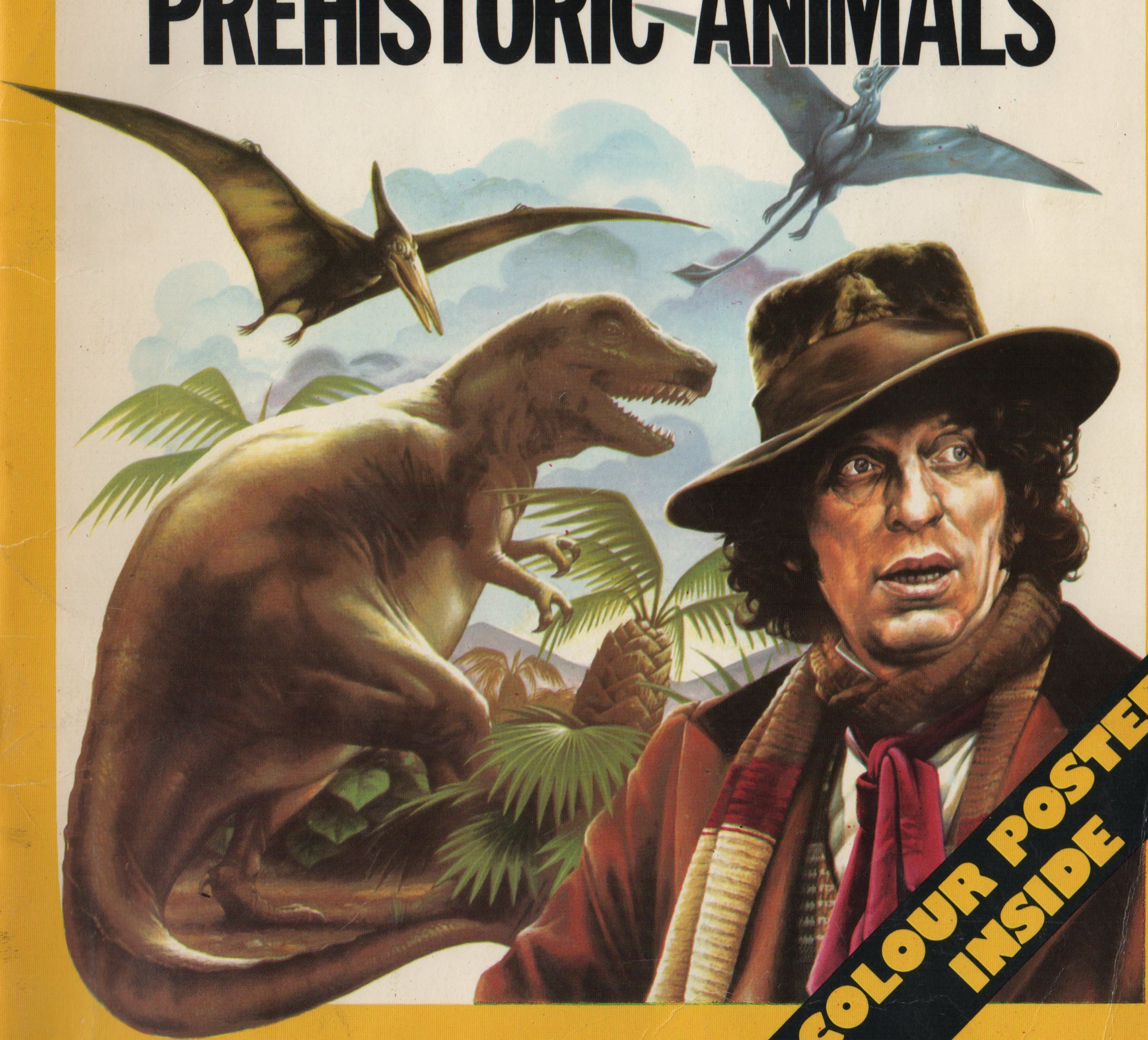
DOCTOR WHO DISCOVERS

PREHISTORIC ANIMALS



COLOUR POSTER INSIDE

DOCTOR WHO DISCOVERS
PREHISTORIC ANIMALS

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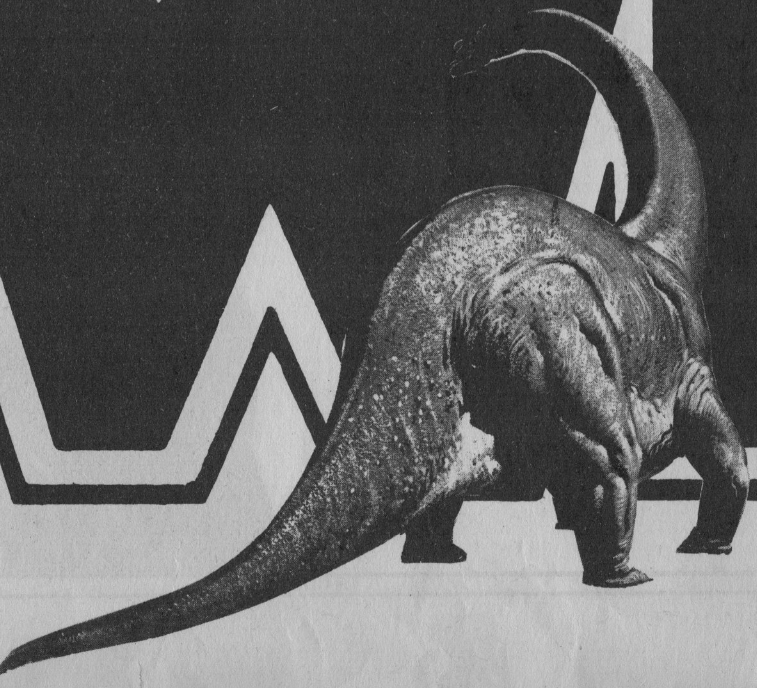
DOCTOR WHO



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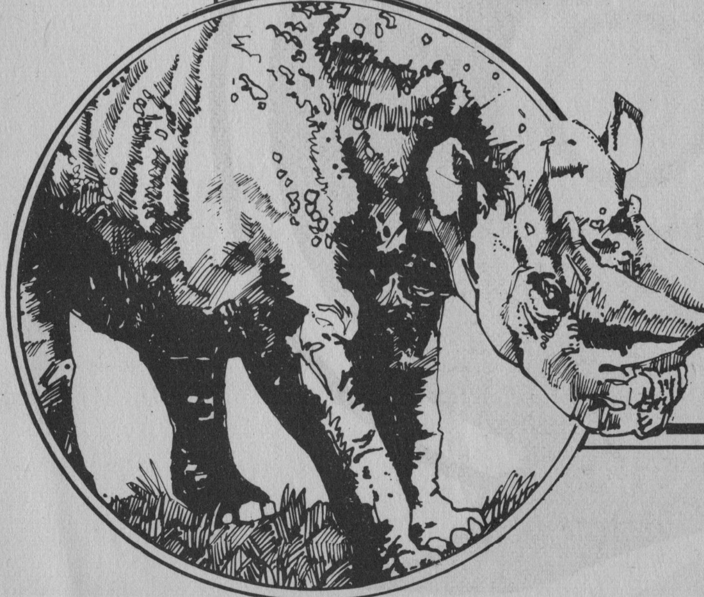
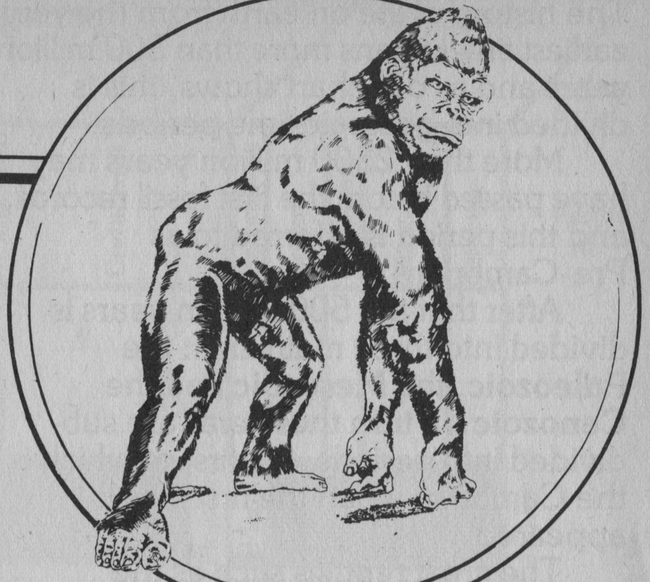




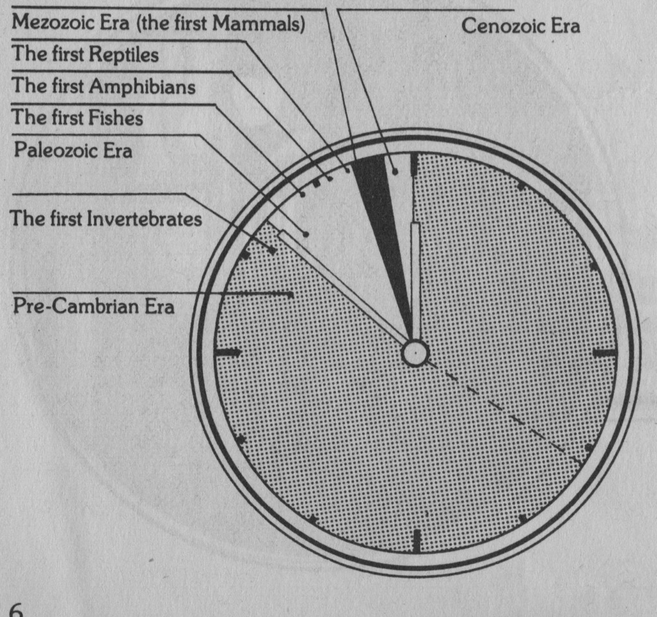
The history of life on earth from the very earliest times spans more than 500 million years and as our chart shows, this is divided into geologic time periods.

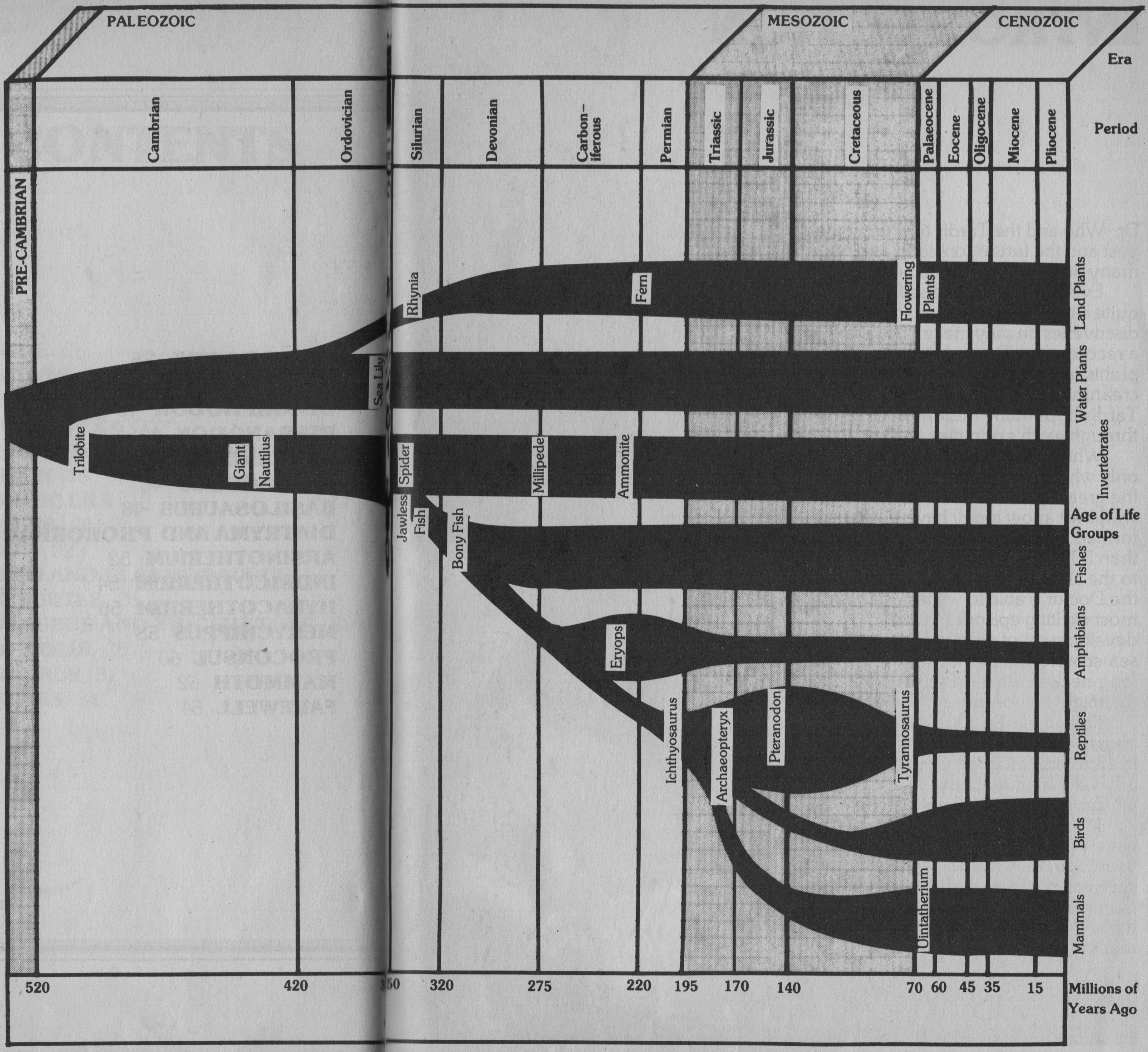
More than 2500 million years may have passed before the first fossil records, and this period is referred to as Pre-Cambrian.

After that the 500 million years is divided into three main eras: the **Paleozoic**, the **Mesozoic** and the **Cenozoic**. In turn these eras are subdivided into periods, the first of which is the Cambrian when the first fossils appeared.

The great reptiles such as the dinosaurs and the pterosaurs, the flying reptiles, dominated the Jurassic and Cretaceous periods of the Mesozoic — between 80 and 150 million years ago. And early man appeared less than 1 million years ago. To put this vast span of time in some kind of perspective, imagine the face of a clock representing these millions of years. Pre-Cambrian times would stretch from midnight until 10 o'clock in the morning. Another hour passes before the appearance of the mighty reptiles; and man himself does not merit more than 12 seconds before 12 noon on the great evolutionary clock.

To help you to see what 'hour' of prehistoric time you are in we have, on some of the following pages, reproduced the hands of this prehistoric clock.


Mezozoic Era (the first Mammals)
Cenozoic Era
The first Reptiles
The first Amphibians
The first Fishes
Paleozoic Era
The first Invertebrates
Pre-Cambrian Era



INTRODUCTION

Dr. Who and the Tardis turn up in the past and the future, on earth and on many other strange and different worlds.

Even the Doctor himself is never quite sure what new and exciting discoveries he may make. This story is a record of the Doctor's journey through prehistoric times, and of the extraordinary creatures which he encounters as the Tardis hops many millions of years through earth's primitive history.

When the Tardis first lands life exists only where it began — in the sea; and the great mountains and oceans of the world we know today have still to be formed. That first touch-down was more than 500 million years ago, but thanks to the time-jumping ability of the Tardis the Doctor is able to witness many of the most exciting episodes in the development of prehistoric life; the giant sea-scorpions and shell-fish; the long-necked sea monsters, and of course the mighty dinosaurs and flying reptiles.

Follow the Tardis as it follows the course of evolution, as the Doctor traces the ancestor of today's horse and the great sea-mammal from which the whales and porpoises are descended.

Most of the prehistoric animals that were very large disappeared millions of years ago; only the mighty mammoth survived until about 10,000 years ago. Compared with the long, long journey through prehistoric times of the Tardis that's only yesterday!

THE BEGINNING OF TIME

As the Tardis landed with a gentle bump the Doctor took a cautious look outside. A very bleak sight indeed met his eyes.

A vast expanse of reddish-grey rock stretched into the distance. The rock was quite bare, without any sign of life. In fact as the Doctor looked around there was no trace of any living creature.

Suddenly a rumble like distant thunder rolled over the barren landscape. The next moment the ground began to tremble, almost causing the Doctor to lose his balance. Then, in a mighty convulsive explosion, a huge ridge of rock rose into the air on the distant horizon. Clouds of reddish-grey dust spouted upwards. Two or three seconds later the sound-wave of that explosion swamped over the Doctor, making him screw up his face and put his hands to his ears.

On the horizon stood a majestic new mountain range . . . . The Doctor smiled happily; he liked being in on the beginning of things and here he was, a witness to a world in the process of creation.

"How interesting. How very interesting," he said. "I do believe that this is earth about — ah - 500 million years ago".

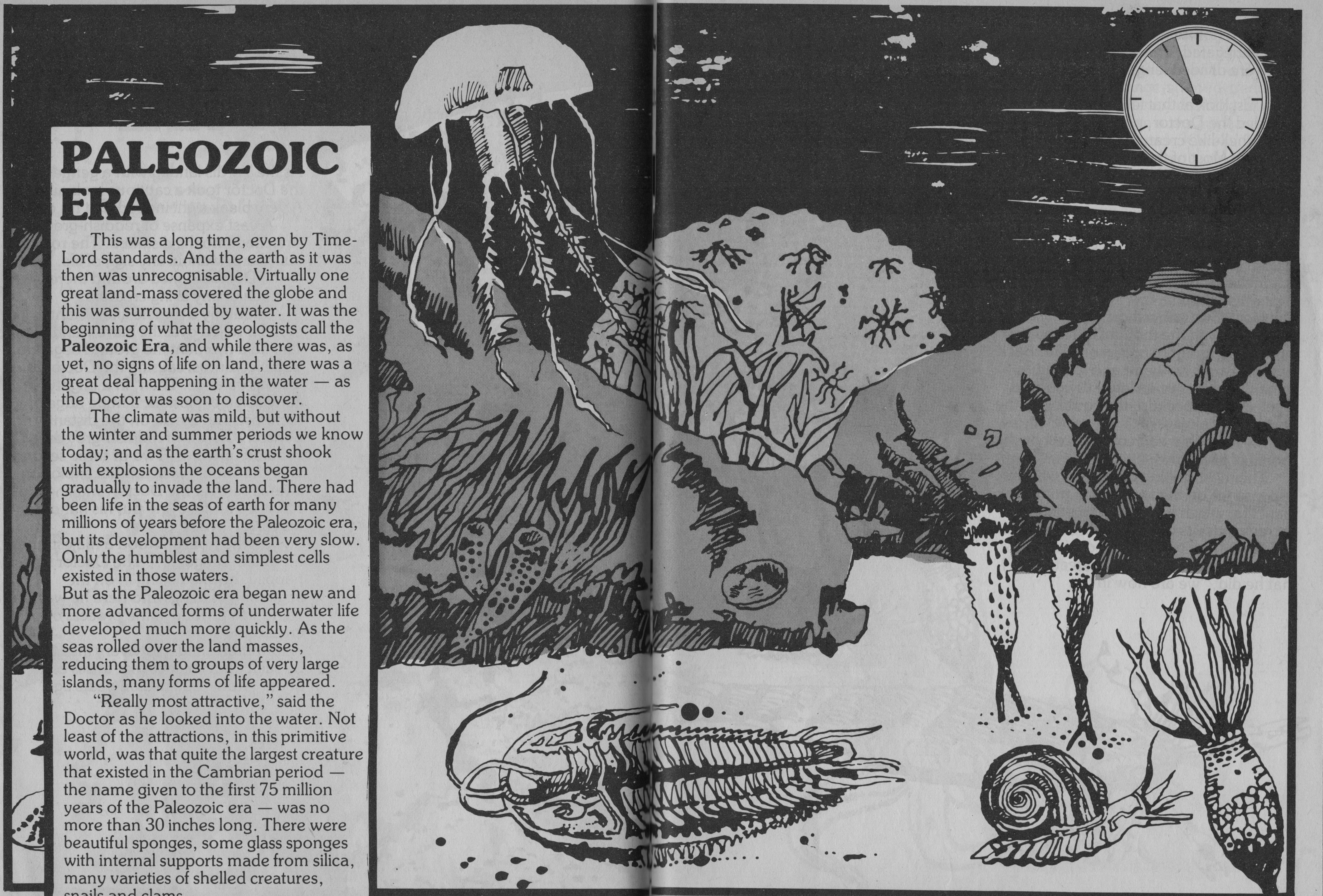
PALEOZOIC ERA

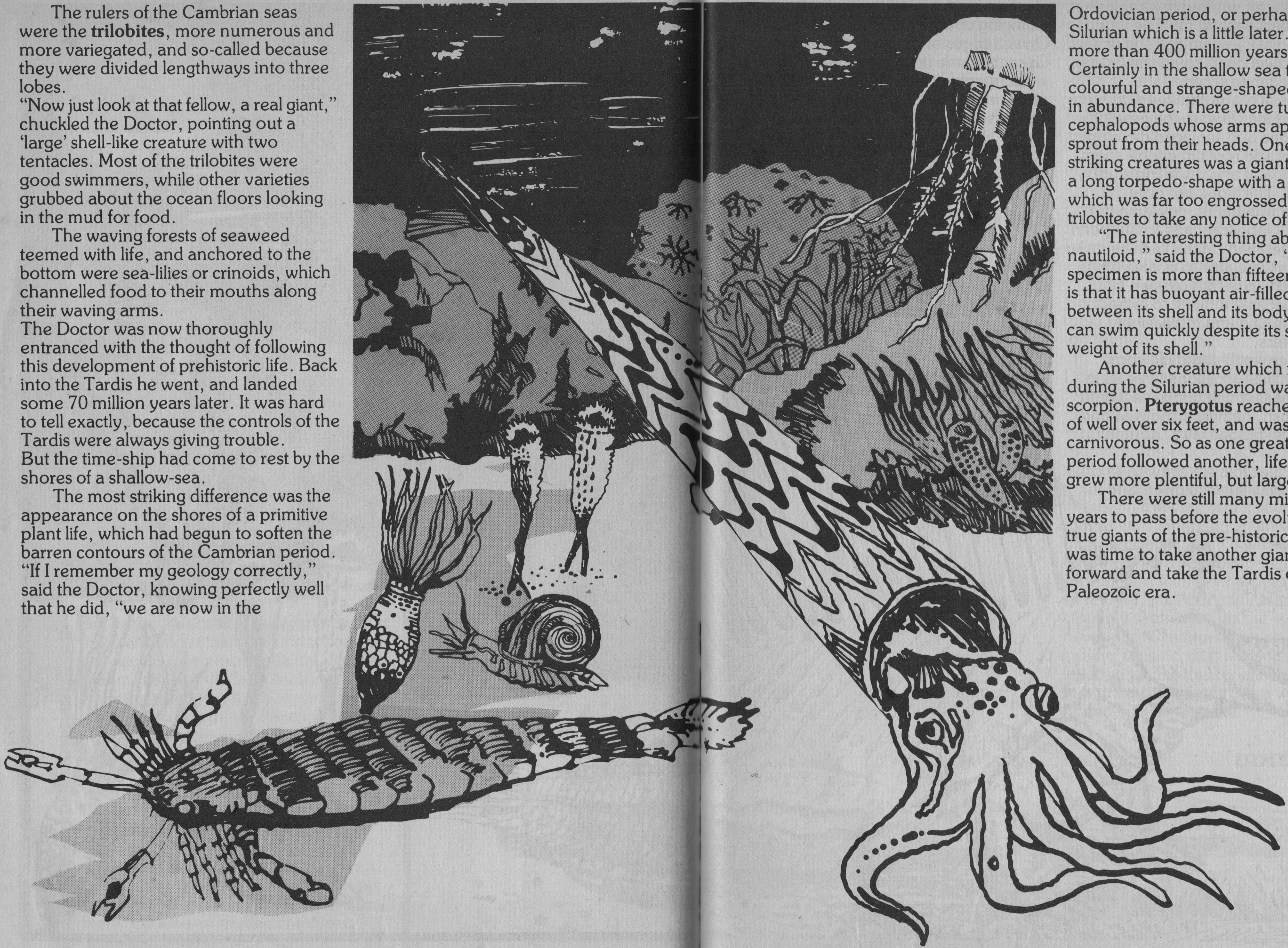
This was a long time, even by Time-Lord standards. And the earth as it was then was unrecognisable. Virtually one great land-mass covered the globe and this was surrounded by water. It was the beginning of what the geologists call the **Paleozoic Era**, and while there was, as yet, no signs of life on land, there was a great deal happening in the water — as the Doctor was soon to discover.

The climate was mild, but without the winter and summer periods we know today; and as the earth's crust shook with explosions the oceans began gradually to invade the land. There had been life in the seas of earth for many millions of years before the Paleozoic era, but its development had been very slow. Only the humblest and simplest cells existed in those waters.

But as the Paleozoic era began new and more advanced forms of underwater life developed much more quickly. As the seas rolled over the land masses, reducing them to groups of very large islands, many forms of life appeared.

"Really most attractive," said the Doctor as he looked into the water. Not least of the attractions, in this primitive world, was that quite the largest creature that existed in the Cambrian period — the name given to the first 75 million years of the Paleozoic era — was no more than 30 inches long. There were beautiful sponges, some glass sponges with internal supports made from silica, many varieties of shelled creatures, snails and clams.





The rulers of the Cambrian seas were the **trilobites**, more numerous and more variegated, and so-called because they were divided lengthways into three lobes.

"Now just look at that fellow, a real giant," chuckled the Doctor, pointing out a 'large' shell-like creature with two tentacles. Most of the trilobites were good swimmers, while other varieties grubbed about the ocean floors looking in the mud for food.

The waving forests of seaweed teemed with life, and anchored to the bottom were sea-lilies or crinoids, which channelled food to their mouths along their waving arms.

The Doctor was now thoroughly entranced with the thought of following this development of prehistoric life. Back into the Tardis he went, and landed some 70 million years later. It was hard to tell exactly, because the controls of the Tardis were always giving trouble.

But the time-ship had come to rest by the shores of a shallow-sea.

The most striking difference was the appearance on the shores of a primitive plant life, which had begun to soften the barren contours of the Cambrian period.

"If I remember my geology correctly," said the Doctor, knowing perfectly well that he did, "we are now in the Ordovician period, or perhaps the early Silurian which is a little later. Anyway more than 400 million years ago."

Certainly in the shallow sea there were colourful and strange-shaped creatures in abundance. There were tube-like cephalopods whose arms appeared to sprout from their heads. One of the most striking creatures was a giant **nautiloid**, a long torpedo-shape with a coiled shell, which was far too engrossed catching trilobites to take any notice of the Doctor.

"The interesting thing about the nautiloid," said the Doctor, "and this specimen is more than fifteen feet long—is that it has buoyant air-filled chambers between its shell and its body so that it can swim quickly despite its size, and the weight of its shell."

Another creature which flourished during the Silurian period was the sea-scorpion. **Pterygotus** reached a length of well over six feet, and was probably carnivorous. So as one great geological period followed another, life not only grew more plentiful, but larger too!

There were still many millions of years to pass before the evolution of the true giants of the pre-historic age. But it was time to take another giant step forward and take the Tardis out of the Paleozoic era.

As the Doctor worked the controls millions of years flashed by. The world was changing once again and the waters which had flowed in to cover the land continents began to recede.

The beds of many shallow seas were laid bare, and life clung to the emerging land. The algae and seaweed developed stems, leaves and roots to enable them to survive on land and draw moisture from the soil. The algae not only survived, but prospered, covering the hitherto bleak landscapes in a rich green carpet of vegetation. Many of the smaller sea creatures were able to evolve lungs to enable them to breath oxygen from the air as it became difficult to extract it from the shrinking and increasingly stagnant waters.

So, imperceptibly, did life come ashore, after many millions of years in the mother seas which first gave it birth. Now larger fish, heavily armoured and equipped with fanged jaws, hunted in the oceans.

As the Paleozoic era drew to its close the climate grew steadily drier, and the creatures which could not adapt to the changing conditions perished.

On the edges of swampland in Eastern Greenland the first known amphibians — **icthyostegids** — dragged themselves on their bellies. About 3 feet long, they had fish-like bodies, and well-developed limbs. Their 'back-bone' was still weak, but this developed gradually into a much stronger inter-locking structure that, with ligament and muscle, supported the body. Beside the swamps and shallow lakes grew the luxurious carboniferous forests, their living and rotting vegetation providing food for insects. And these, in turn, provided food for the amphibians.

The amphibians covered a great part of the earth, but as the Carboniferous period gave way to the final Paleozoic period, the Permian, the first mammal-like reptiles appeared. During this period great changes occurred again in the earth's climate and appearance, and warmer zones spread to the northern hemispheres, where dry deserts began to appear.

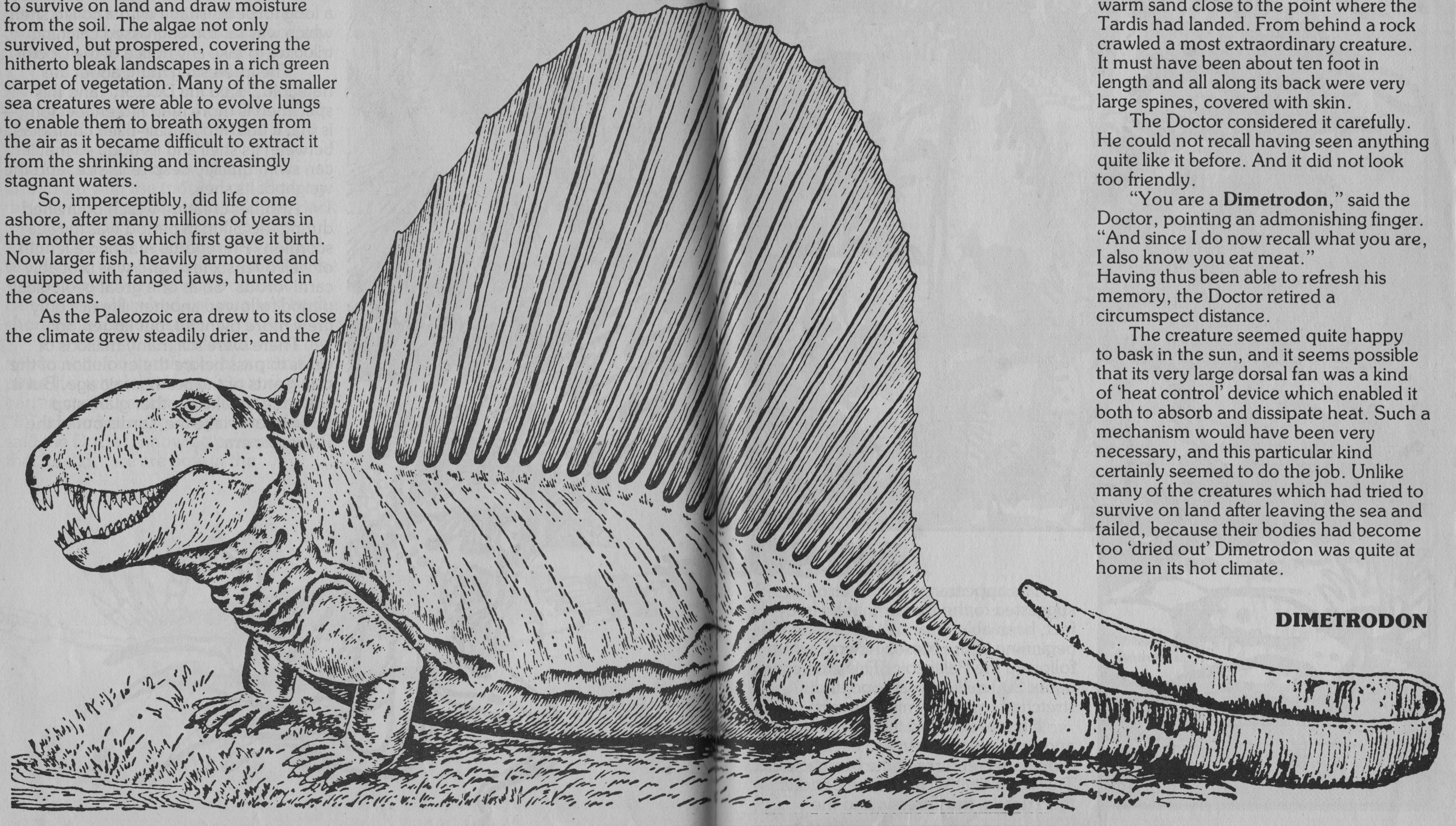
The Doctor stood on a patch of quite warm sand close to the point where the Tardis had landed. From behind a rock crawled a most extraordinary creature. It must have been about ten foot in length and all along its back were very large spines, covered with skin.

The Doctor considered it carefully. He could not recall having seen anything quite like it before. And it did not look too friendly.

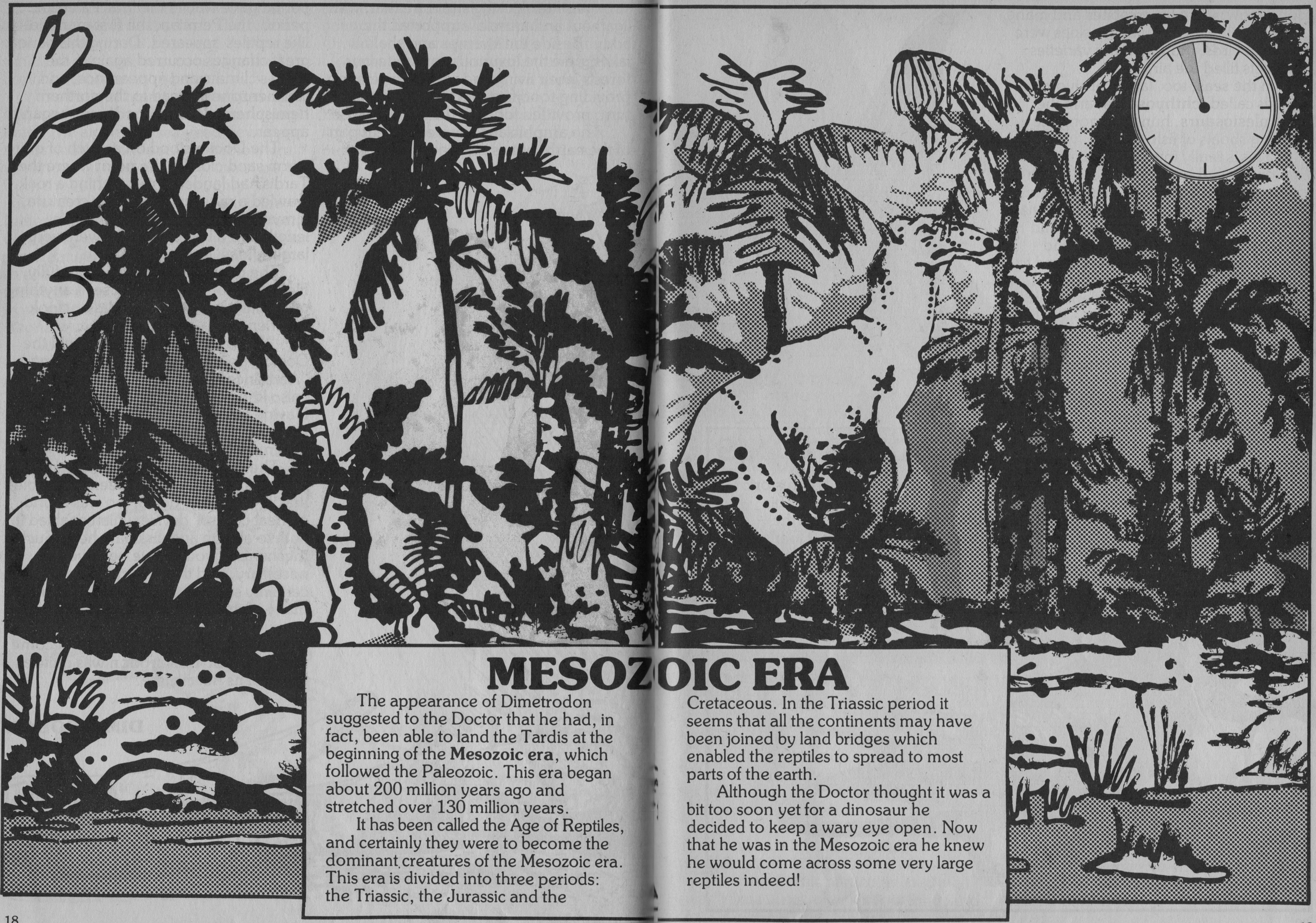
"You are a **Dimetrodon**," said the Doctor, pointing an admonishing finger. "And since I do now recall what you are, I also know you eat meat."

Having thus been able to refresh his memory, the Doctor retired a circumspect distance.

The creature seemed quite happy to bask in the sun, and it seems possible that its very large dorsal fan was a kind of 'heat control' device which enabled it both to absorb and dissipate heat. Such a mechanism would have been very necessary, and this particular kind certainly seemed to do the job. Unlike many of the creatures which had tried to survive on land after leaving the sea and failed, because their bodies had become too 'dried out' Dimetrodon was quite at home in its hot climate.



DIMETRODON



MESOZOIC ERA

The appearance of Dimetrodon suggested to the Doctor that he had, in fact, been able to land the Tardis at the beginning of the **Mesozoic era**, which followed the Paleozoic. This era began about 200 million years ago and stretched over 130 million years.

It has been called the Age of Reptiles, and certainly they were to become the dominant creatures of the Mesozoic era. This era is divided into three periods: the Triassic, the Jurassic and the Cretaceous. In the Triassic period it seems that all the continents may have been joined by land bridges which enabled the reptiles to spread to most parts of the earth.

Although the Doctor thought it was a bit too soon yet for a dinosaur he decided to keep a wary eye open. Now that he was in the Mesozoic era he knew he would come across some very large reptiles indeed!

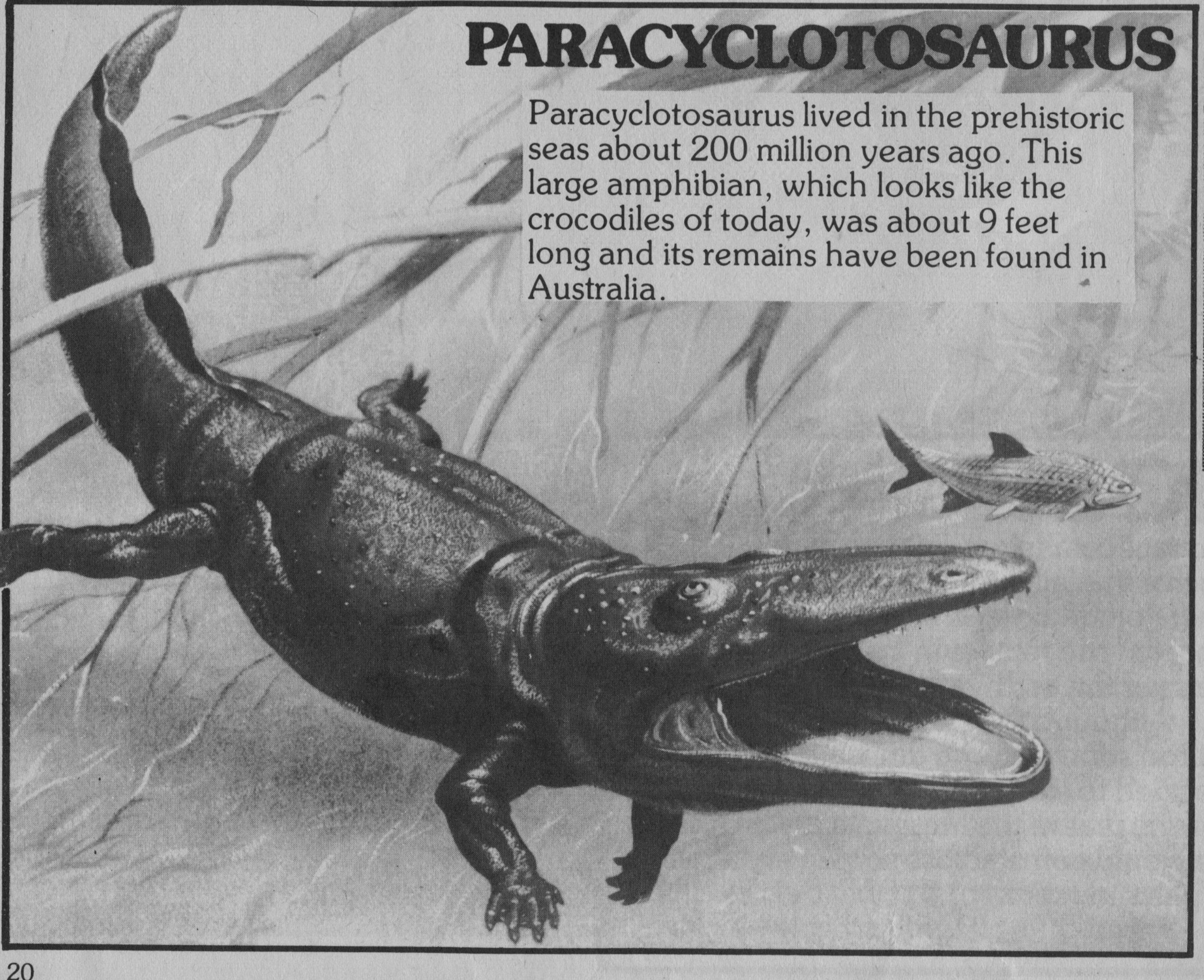
Gone, now, were the trilobites and many of the amphibians. As yet the skies were empty of birds, though many varieties of insects filled the air.

And in the seas, too, large carnivorous reptiles called **ichthyosaurs**, and the huge **plesiosaurs**, hunted among the teeming shoals of fish.

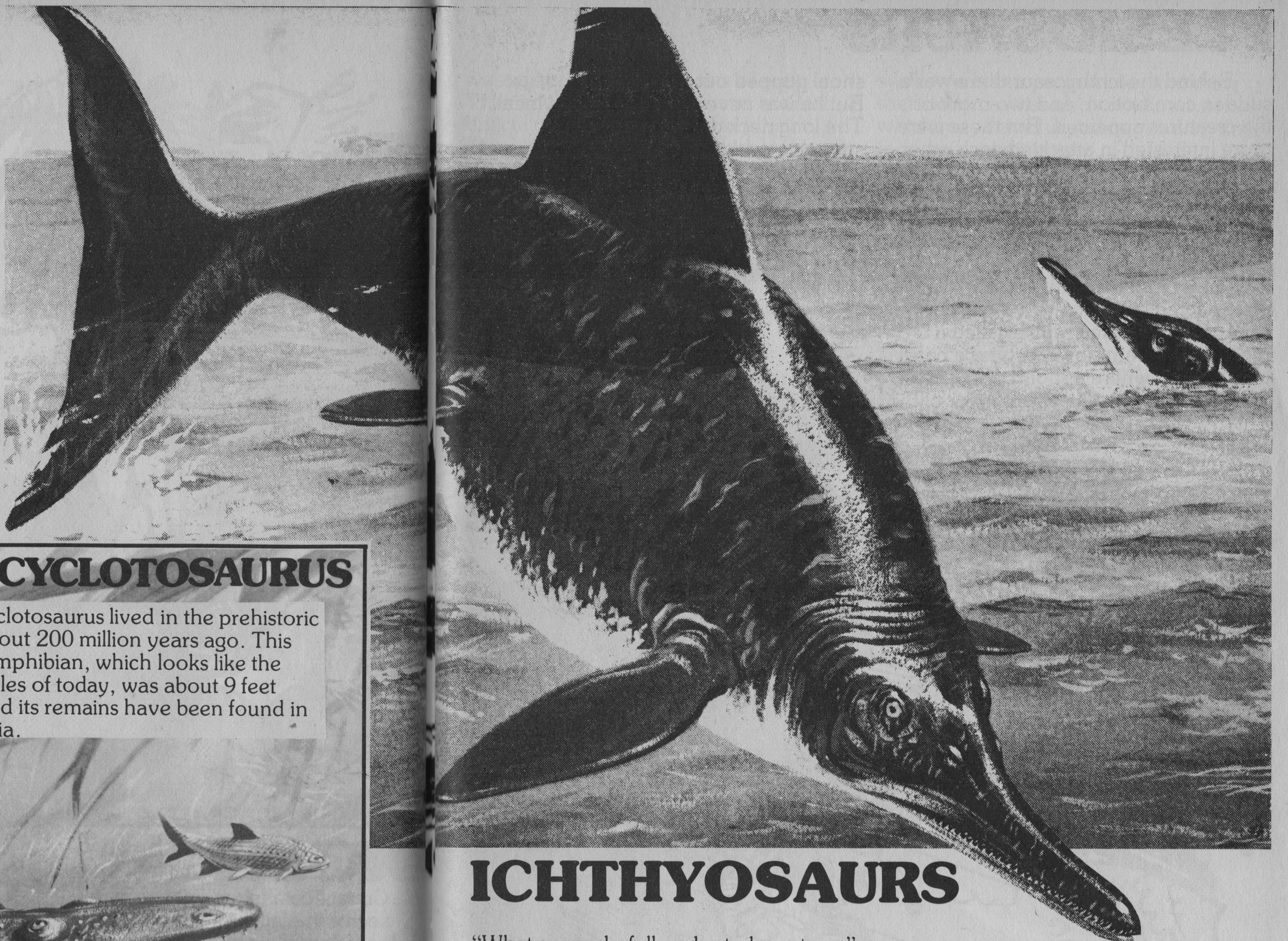
"This is really my favourite era," the Doctor grinned happily. "There's such a lot happening, both on the land and in the sea. Evolution is such an extraordinary thing . . . " Even the Doctor, who had in his travels seen many strange and wonderful forms of life, never ceased to wonder at the rich prehistoric times of earth, and the rise and fall of land and sea.

The Doctor's tour of the Mesozoic era began with a glimpse of an ichthyosaur. In appearance it was very much like a dolphin though it had an elongated snout, in which were set around 200 gleaming teeth!

PARACYCLOTOSAURUS



Paracyclotosaurus lived in the prehistoric seas about 200 million years ago. This large amphibian, which looks like the crocodiles of today, was about 9 feet long and its remains have been found in Australia.



ICHTHYOSAURS

"What a wonderfully-adapted creature," he said. "Of all the sea-going reptiles of the era it is the one that is quite the most at home."

This was only too evident as it tore through the water at great speed.

It swam like a fish, using its tail to propel itself forward, and its fin-like flippers to balance itself. This particular specimen was Mixosaurus, over six foot long, and in full cry after a shoal of fish.

As it leapt out of the water the Doctor could clearly see the bony plates protecting its very large eyes against the pressure of the water.

The Doctor was delighted to have seen this creature, which although looking like a dolphin, was probably not at all related to it.

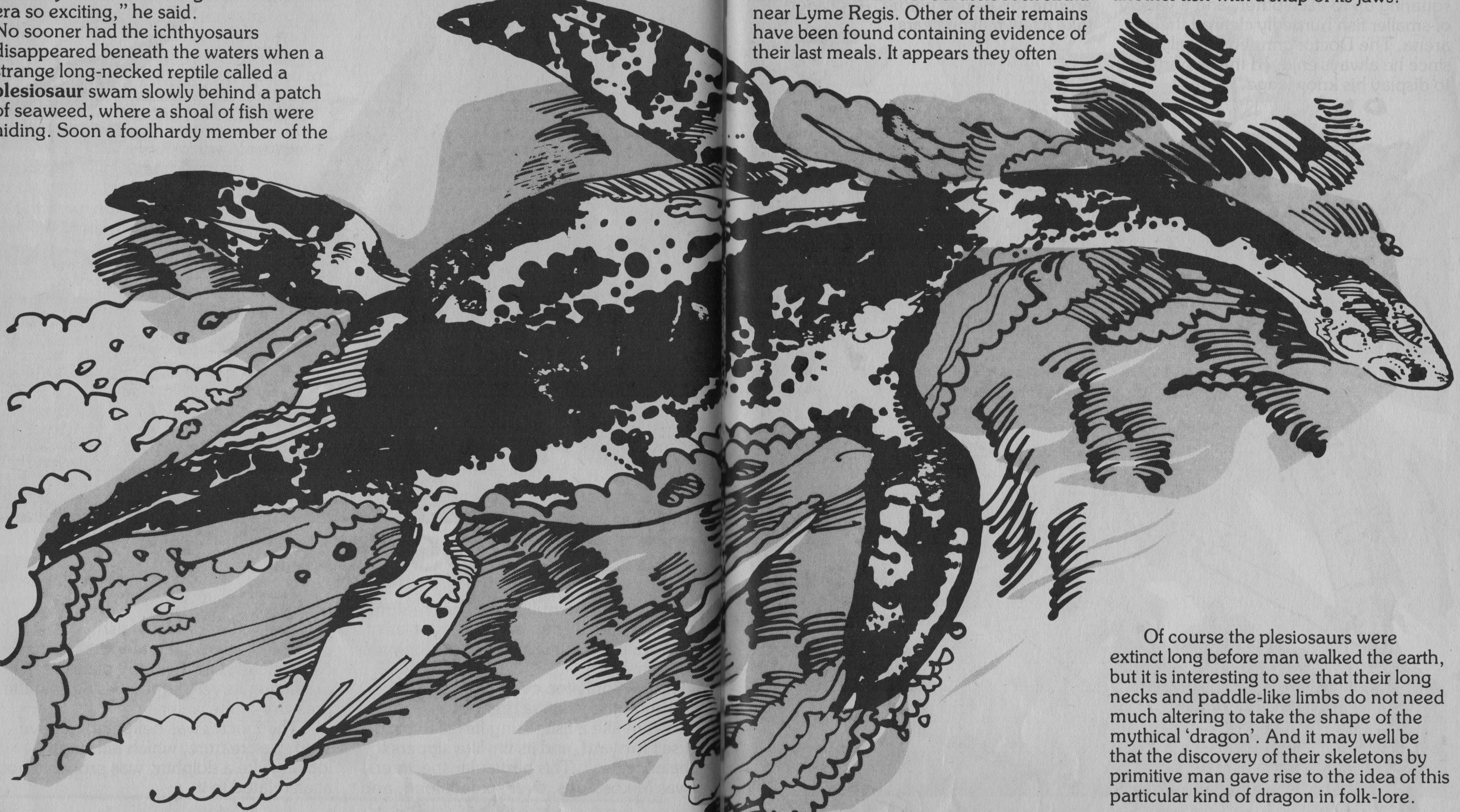
PLESIOSAURS

Behind the ichthyosaur there was a sudden commotion, and two more of the creatures appeared. But these were more interested in attacking each other with their long rows of teeth than catching fish. The Doctor assumed that they were two males disputing a female. "Exactly the kind of thing that makes this era so exciting," he said.

No sooner had the ichthyosaurs disappeared beneath the waters when a strange long-necked reptile called a **plesiosaur** swam slowly behind a patch of seaweed, where a shoal of fish were hiding. Soon a foolhardy member of the shoal popped out after a tasty mollusc. But he was never able to taste his meal! The long neck darted out, its jaws snapped, and the fish was crunched and swallowed! The plesiosaur paddled on with its limbs, its small green eyes watchful for its next prey. The plesiosaurs were greatly dreaded beasts of prey. Their speed through the water made it difficult for fish to escape, and their powerful teeth could crunch through the shell of a mollusc with ease.

This particular reptile was the genus Plesiosaurus, and their skeletons have been found in Lower Jurassic rock strata near Lyme Regis. Other of their remains have been found containing evidence of their last meals. It appears they often swallowed their prey whole, and that their body cavities also contained stones which may have helped to grind up their food and aid digestion.

"With habits like that they certainly needed something," said the Doctor, as he watched plesiosaurus dispatch another fish with a snap of its jaws.



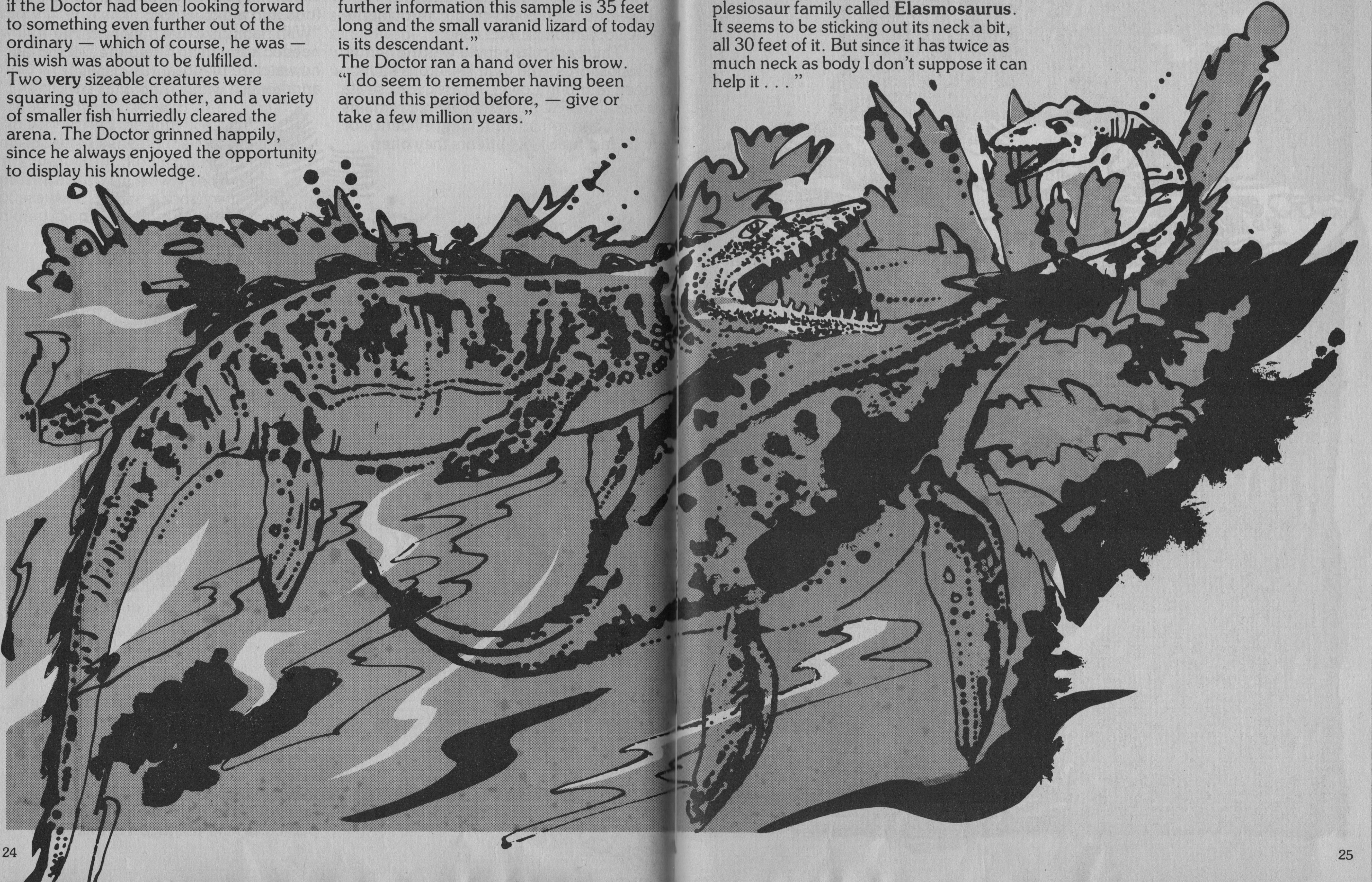
Of course the plesiosaurs were extinct long before man walked the earth, but it is interesting to see that their long necks and paddle-like limbs do not need much altering to take the shape of the mythical 'dragon'. And it may well be that the discovery of their skeletons by primitive man gave rise to the idea of this particular kind of dragon in folk-lore.

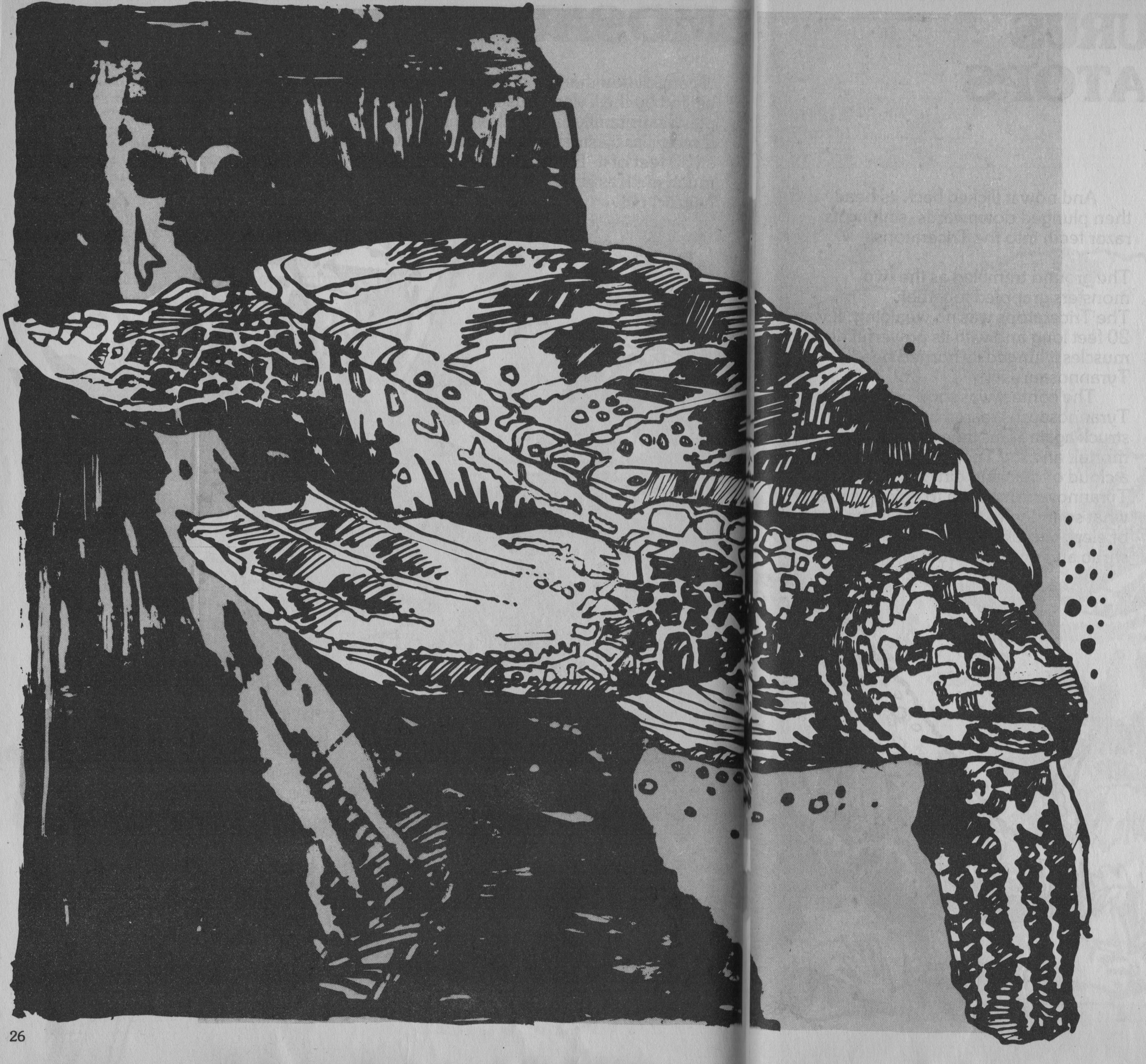
TYLOSAURUS VERSUS ELASMOSAURUS

A great many other reptiles swarmed in the seas of the Cretaceous period, and if the Doctor had been looking forward to something even further out of the ordinary — which of course, he was — his wish was about to be fulfilled.
Two **very** sizeable creatures were squaring up to each other, and a variety of smaller fish hurriedly cleared the arena. The Doctor grinned happily, since he always enjoyed the opportunity to display his knowledge.

"The lizard-like beast on the left is **Tylosaurus**," he said. "And for your further information this sample is 35 feet long and the small varanid lizard of today is its descendant."
The Doctor ran a hand over his brow. "I do seem to remember having been around this period before, — give or take a few million years."

"I can tell you that the creature being bullied by the Tylosaurus is one of the plesiosaur family called **Elasmosaurus**. It seems to be sticking out its neck a bit, all 30 feet of it. But since it has twice as much neck as body I don't suppose it can help it . . ."





GIANT TURTLE

The Doctor suspected that this was all happening in the upper Cretaceous seas of North America, which it was. There were other creatures to be seen, including a giant turtle, about 14 feet long, which must have weighed two or three tons, and some huge circular shells the size of tractor wheels. Suddenly there was a great splashing and foaming and the two monster reptiles began to lash out at each other.

"I think," said the Doctor carefully, "we had better be moving on."

TYRANNOSAURUS AND TRICERATOPS

The sight that met the eyes of the Doctor as the Tardis skipped to another stop within the Mesozoic era was one which he was never to forget.

Facing each other were two of the great monsters of prehistoric times. Waddling forward on its hind legs, and towering all of forty feet into the air, mighty **Tyrannosaurus** most ferocious of dinosaurs, advanced upon its prey.

Its intended victim, a three horned **Triceratops**, crouched ready to defend itself against its carnivorous enemy.

The Doctor was in two minds whether to remain witness to the encounter, or retreat hurriedly into the shelter of the Tardis. The Doctor decided to stay and watch. Even he, who had seen many astonishing sights in the universe, regarded this as one of the most remarkable.

"I do not, of course, approve of violence," he said. "But on the other hand these creatures, who dominated earth for more than 100 million years, are only disputing whether one shall be a meal for the other!"

Tyrannosaurus edged its 8-ton frame forward, and bared its four-foot long jaws. Everything about it, down to the 8-inch talons on its toes, was enormous. One of the few carnivorous dinosaurs, it was feared as the most ruthless killing machine of its age.

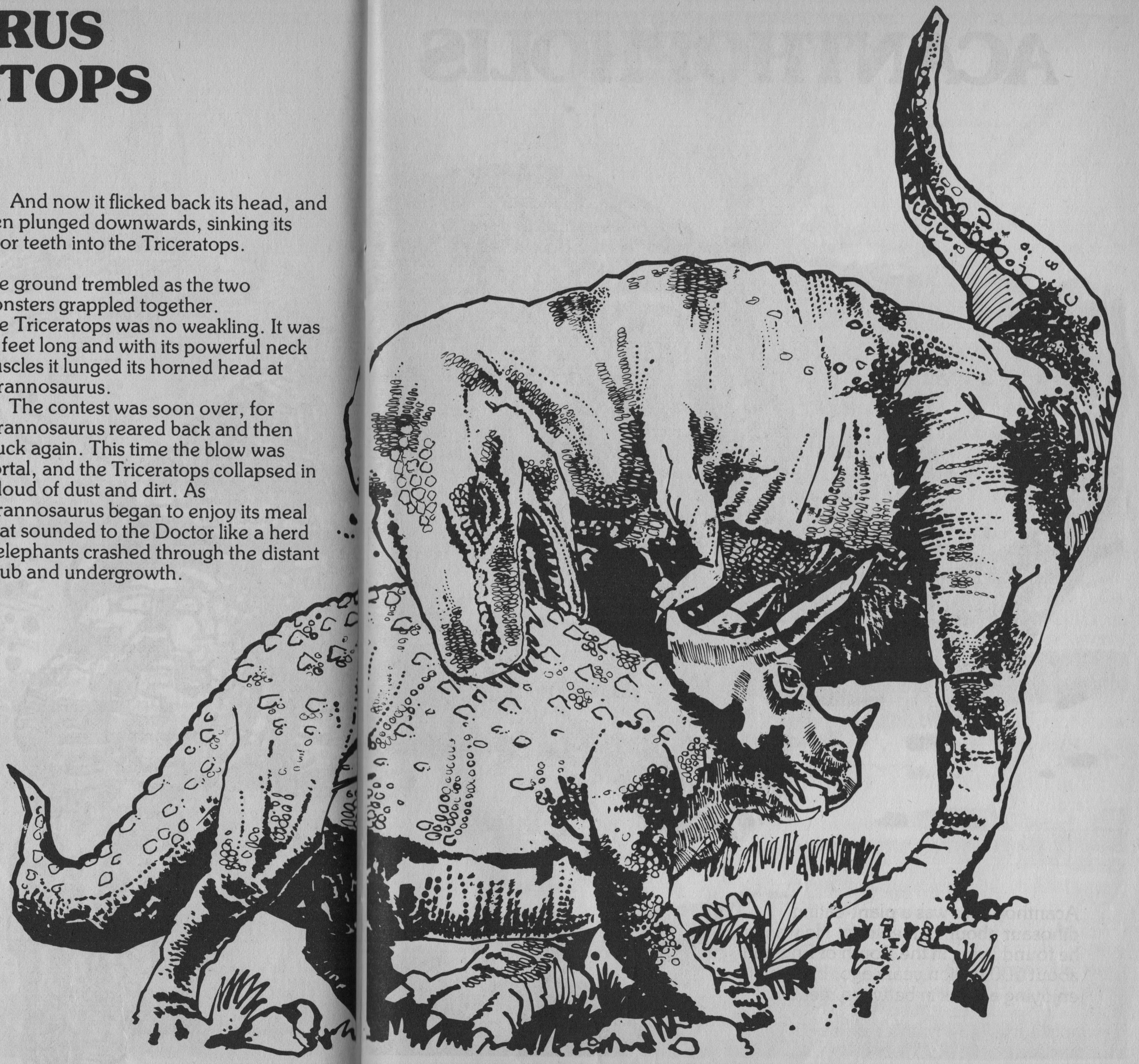
The Triceratops, a traditional target for the king of reptiles, had over the generations developed thick armour to protect itself. But while it grew thicker bone, and tougher flesh, so did Tyrannosaurus grow heavier jaws and sharper teeth.

And now it flicked back its head, and then plunged downwards, sinking its razor teeth into the Triceratops.

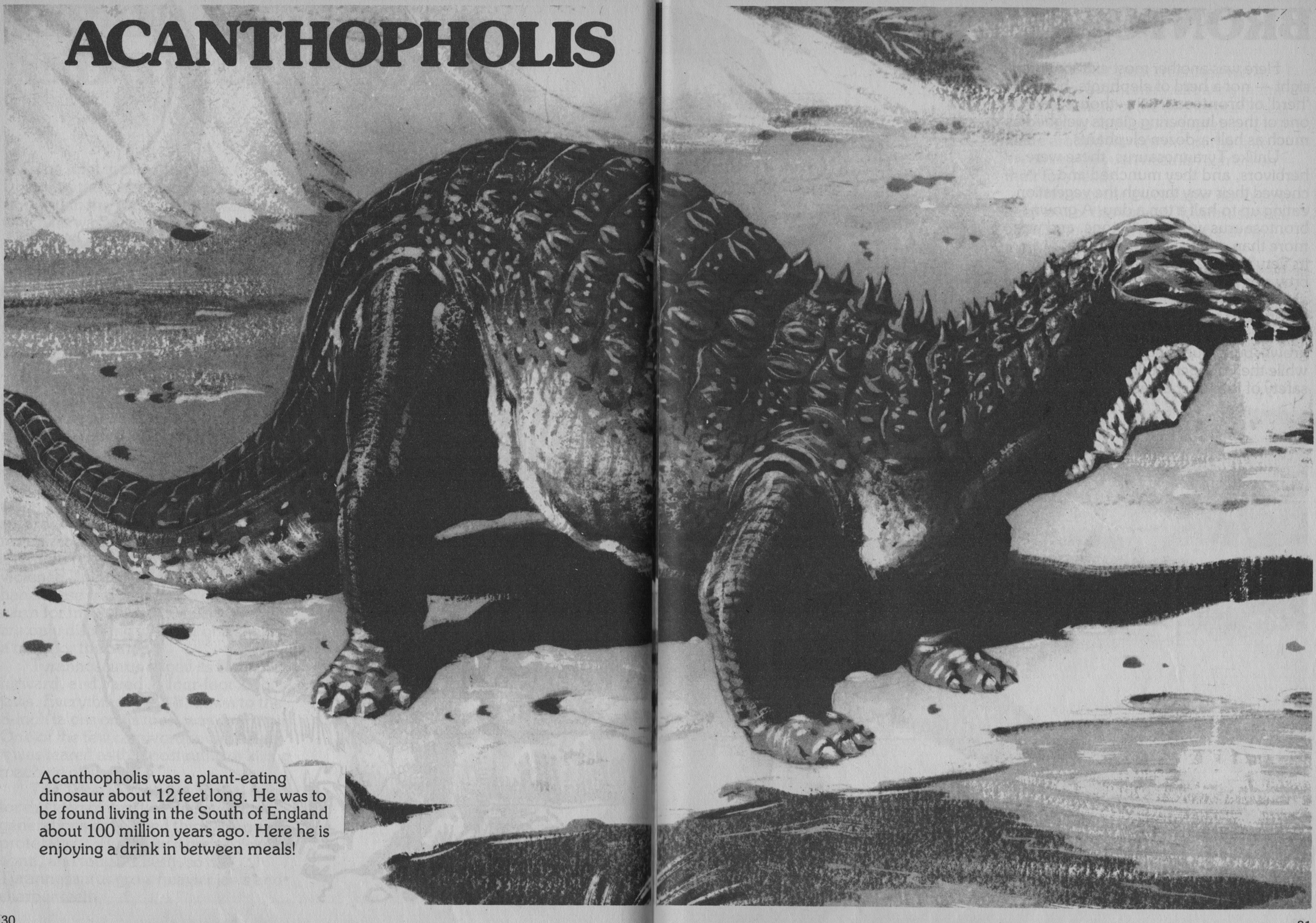
The ground trembled as the two monsters grappled together.

The Triceratops was no weakling. It was 20 feet long and with its powerful neck muscles it lunged its horned head at Tyrannosaurus.

The contest was soon over, for Tyrannosaurus reared back and then struck again. This time the blow was mortal, and the Triceratops collapsed in a cloud of dust and dirt. As Tyrannosaurus began to enjoy its meal what sounded to the Doctor like a herd of elephants crashed through the distant shrub and undergrowth.



ACANTHOPHOLIS



Acanthopholis was a plant-eating dinosaur about 12 feet long. He was to be found living in the South of England about 100 million years ago. Here he is enjoying a drink in between meals!

BRONTOSAURUS

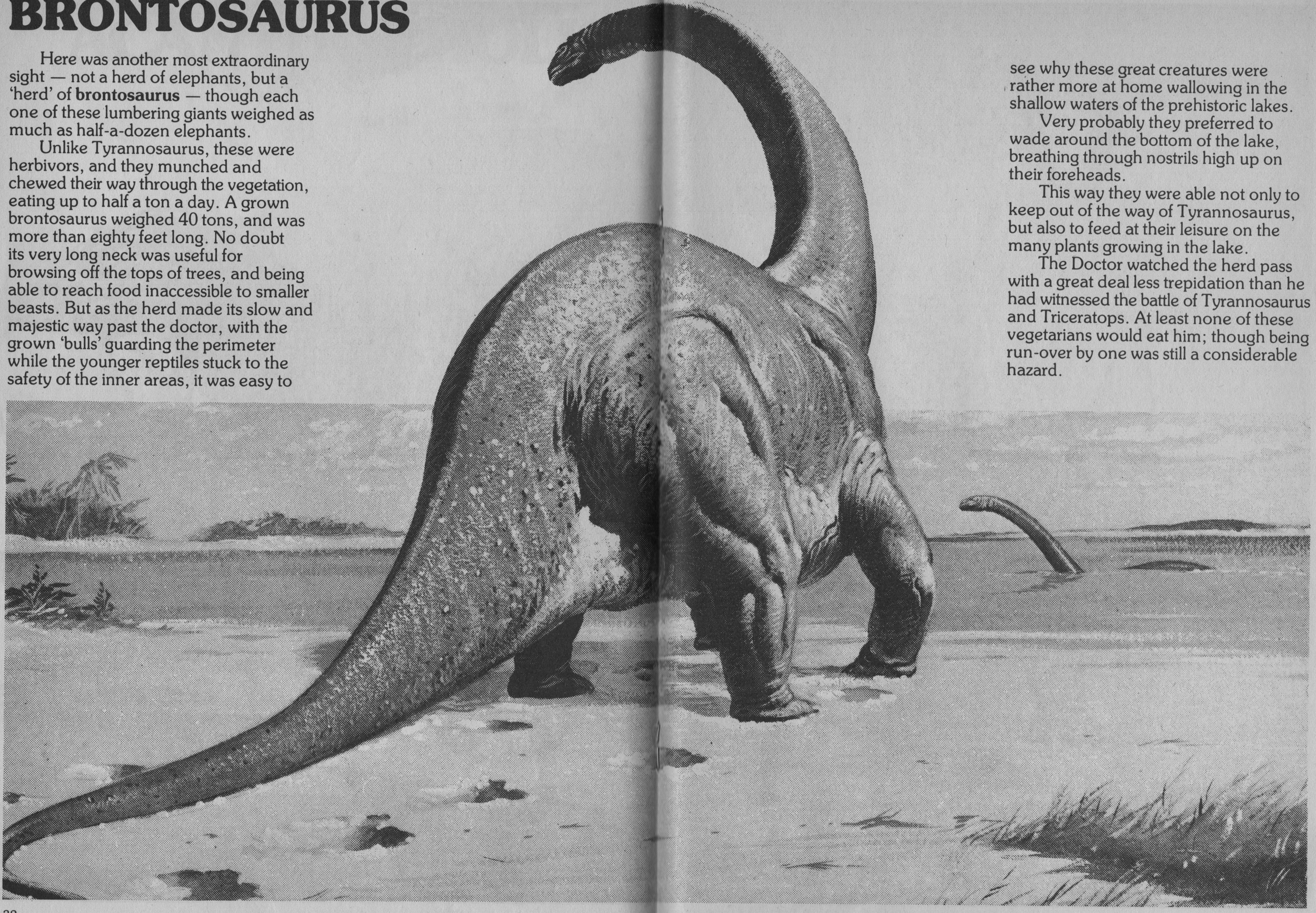
Here was another most extraordinary sight — not a herd of elephants, but a 'herd' of **brontosaurus** — though each one of these lumbering giants weighed as much as half-a-dozen elephants.

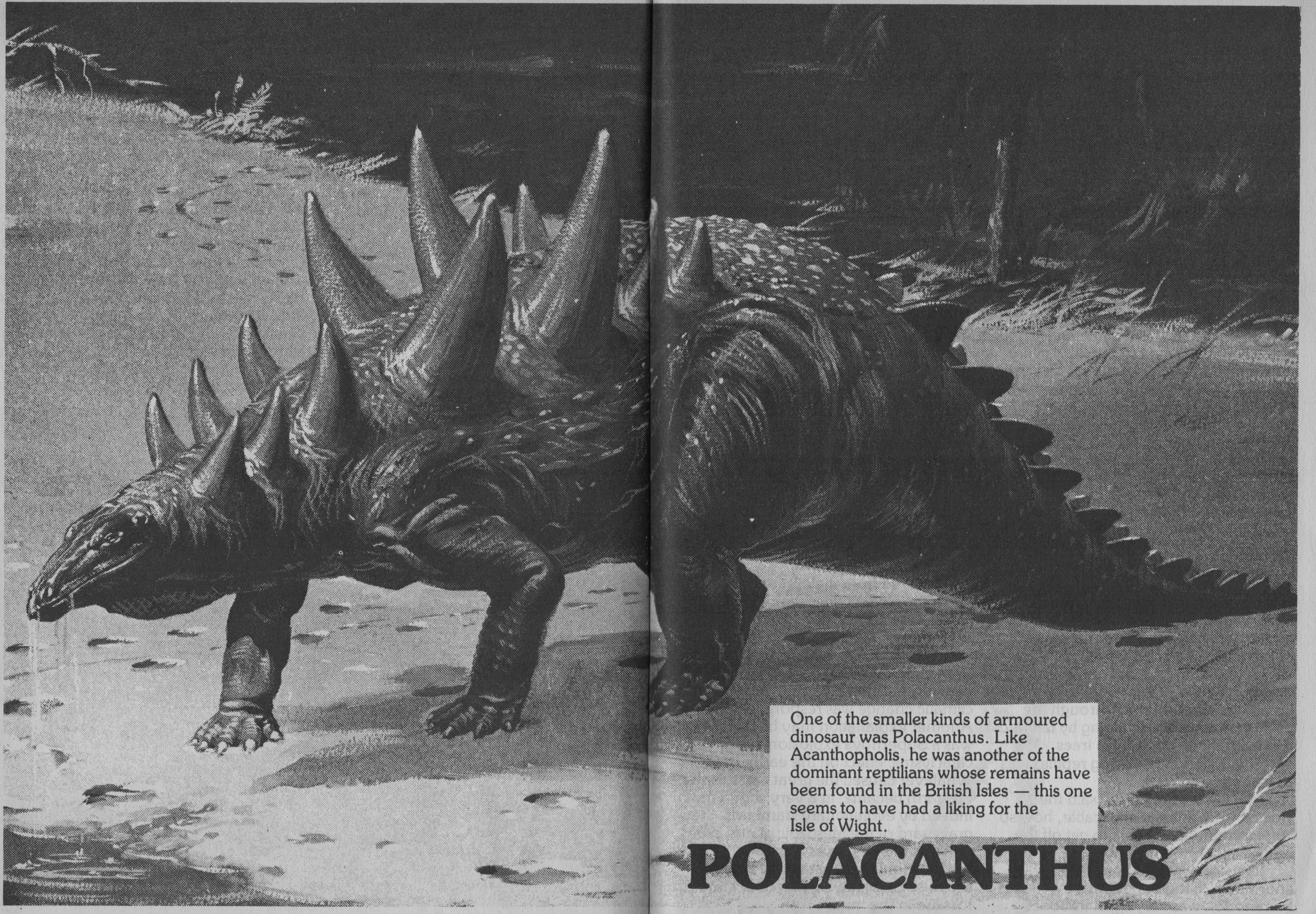
Unlike Tyrannosaurus, these were herbivors, and they munched and chewed their way through the vegetation, eating up to half a ton a day. A grown brontosaurus weighed 40 tons, and was more than eighty feet long. No doubt its very long neck was useful for browsing off the tops of trees, and being able to reach food inaccessible to smaller beasts. But as the herd made its slow and majestic way past the doctor, with the grown 'bulls' guarding the perimeter while the younger reptiles stuck to the safety of the inner areas, it was easy to see why these great creatures were rather more at home wallowing in the shallow waters of the prehistoric lakes.

Very probably they preferred to wade around the bottom of the lake, breathing through nostrils high up on their foreheads.

This way they were able not only to keep out of the way of Tyrannosaurus, but also to feed at their leisure on the many plants growing in the lake.

The Doctor watched the herd pass with a great deal less trepidation than he had witnessed the battle of Tyrannosaurus and Triceratops. At least none of these vegetarians would eat him; though being run-over by one was still a considerable hazard.





POLACANTHUS

One of the smaller kinds of armoured dinosaur was Polacanthus. Like Acanthopholis, he was another of the dominant reptilians whose remains have been found in the British Isles — this one seems to have had a liking for the Isle of Wight.

PTERODACTYL

The skies of the Mesozoic era were not empty. The reptiles which came to dominate both the land and the seas, also learned to fly.

Just how they did, and why they should have developed this ability, remain a mystery. But the fact is that there were many kinds of flying reptiles, called pterosaurs. One of the earliest was **Rhamphorhynchus**, with its very long tail and long, elongated jaws with forward-projecting teeth, which it used to catch fish with as it swept down low over the lagoons.

Yet another was **Dimorphodon**, which measured just over four feet in length, including its long tail, although its body was short.

Its most striking characteristic was its bulky skull, and very probably it was a carnivore.

The most curious of the pterosaurs was the **Pterodactyl**, which flourished in the late Jurassic period. It was found most frequently beside the seashores and may have slept hanging from rocks or branches like a bat. It had beak-like jaws and preferred a diet of fish and insects. What a strange sight they made, fluttering rather clumsily through the prehistoric skies and clinging by taloned feet from the tall sea-shore trees.

The largest of the flying reptiles was **Pteranodon**.

"It is quite extraordinary," said the Doctor, "but entirely explicable, how so large a creature was able to get off the ground at all."

Its secret was that despite its enormous 25 foot wing span, the Pteranodon was very light. Its bones were hollow, and its body was no larger than a turkey's. And although it did not appear to be very muscular, it probably was able to take off by simply spreading its wings and allowing the wind to carry it skywards with very little effort of its own.

It was more of a glider, than a flier, and what a graceful sight it was as it soared over the Cretaceous seas, diving now and again to scoop a fish into its pouch, where it would store it until needed.

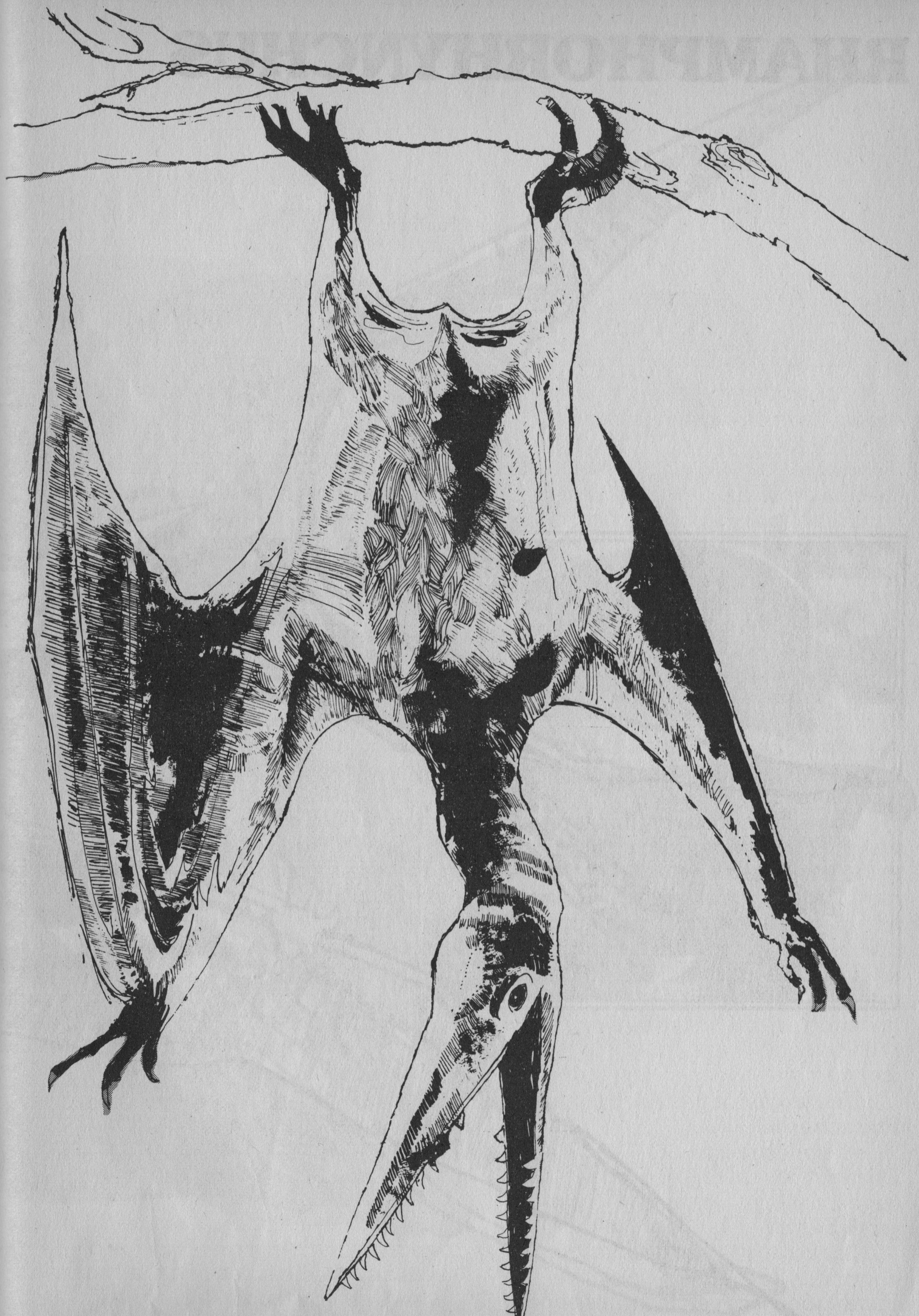
What colour was it? Did it have feathers? Many experts believe it was black and leathery, but another theory has it that Pteranodon was covered with white fur to protect it from the heat of the sun.

Perhaps sadly, Pteranodon, like all the other dinosaurs and large reptilian creatures of the Mesozoic era, disappeared from the earth 70 million years ago. In fact their disappearance marks the end of that great era of earth's early history.

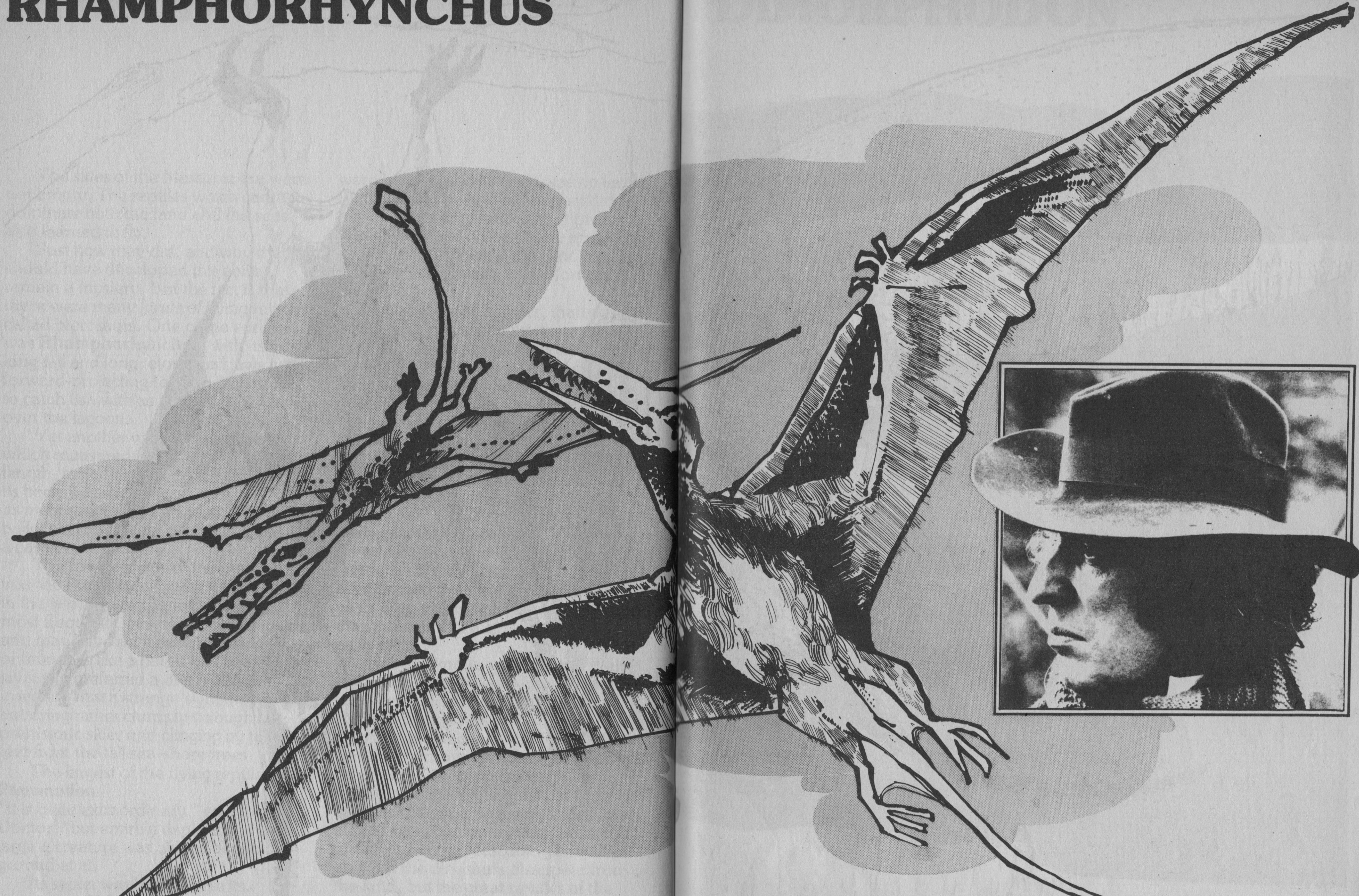
Nobody knows what caused their extinction. What we do know is that it was very sudden, and that perhaps a climatic change was responsible.

Another explanation may be that there was a Supernova explosion which had a cataclysmic effect on the earth.

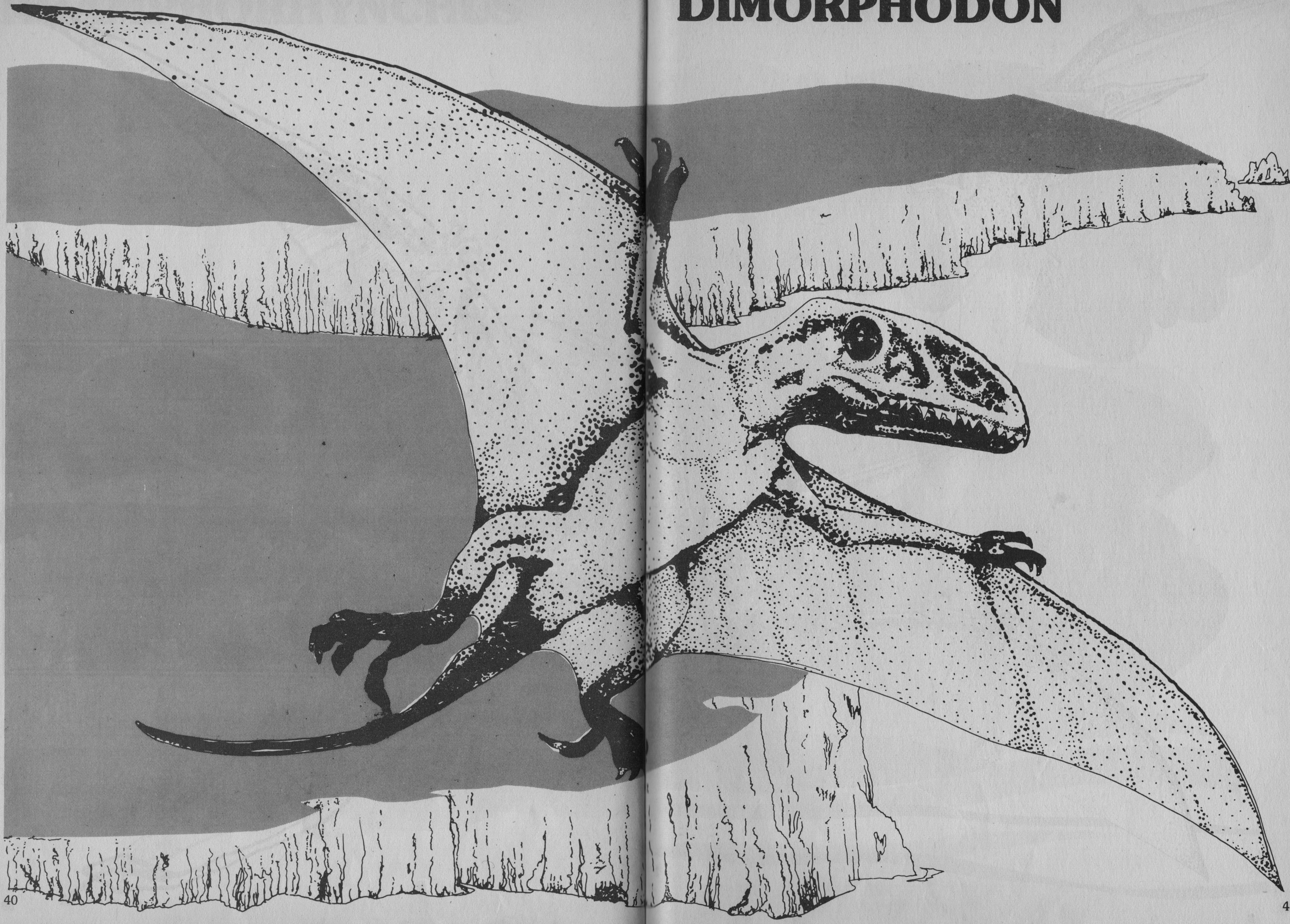
Whatever caused the great catastrophe the earth became, in a very short time indeed by evolutionary standards, the graveyard of the Mesozoic giants. Not only did the dinosaurs disappear from off the land, but the great reptiles of the seas also died out, leaving their bones to fossilise in the mud.



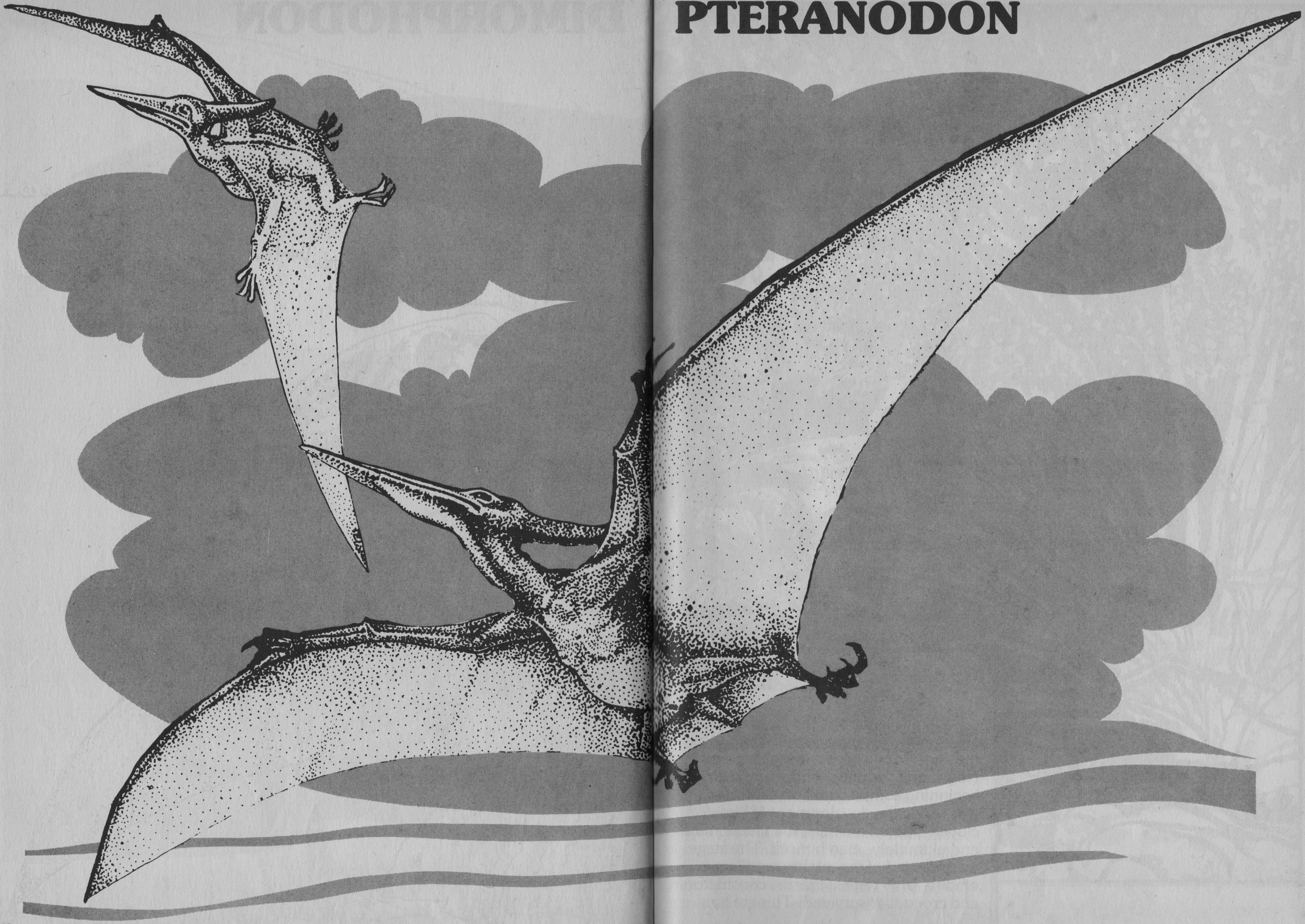
RHAMPHORHYNCHUS

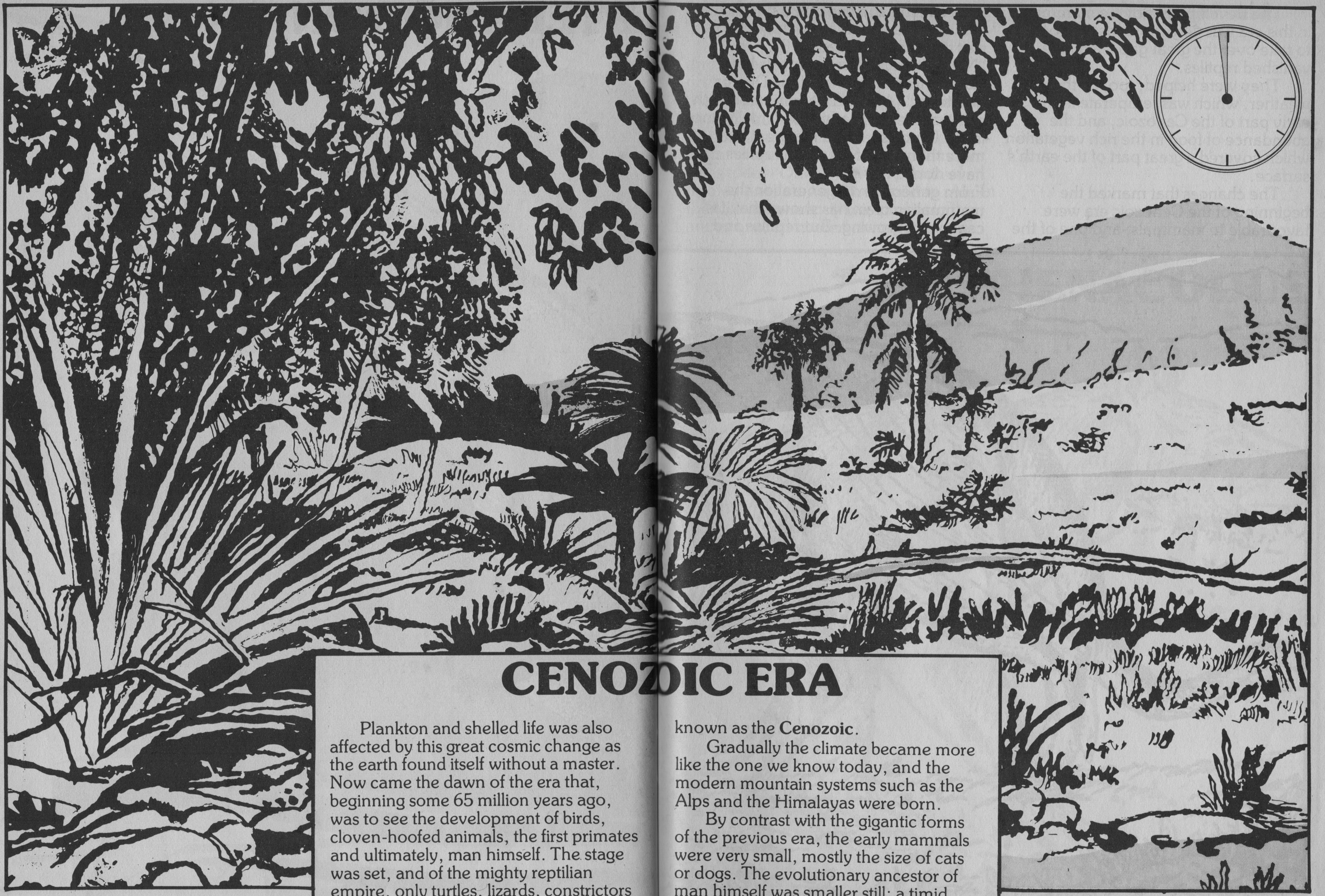


DIMORPHODON



PTERANODON





CENOZOIC ERA

Plankton and shelled life was also affected by this great cosmic change as the earth found itself without a master. Now came the dawn of the era that, beginning some 65 million years ago, was to see the development of birds, cloven-hoofed animals, the first primates and ultimately, man himself. The stage was set, and of the mighty reptilian empire, only turtles, lizards, constrictors and crocodiles survived. This era is known as the **Cenozoic**.

Gradually the climate became more like the one we know today, and the modern mountain systems such as the Alps and the Himalayas were born.

By contrast with the gigantic forms of the previous era, the early mammals were very small, mostly the size of cats or dogs. The evolutionary ancestor of man himself was smaller still; a timid shrew-creature which lived in trees.

The development of the mammals in this era was very rapid, as they began to take over the great gap left by the vanished reptiles.

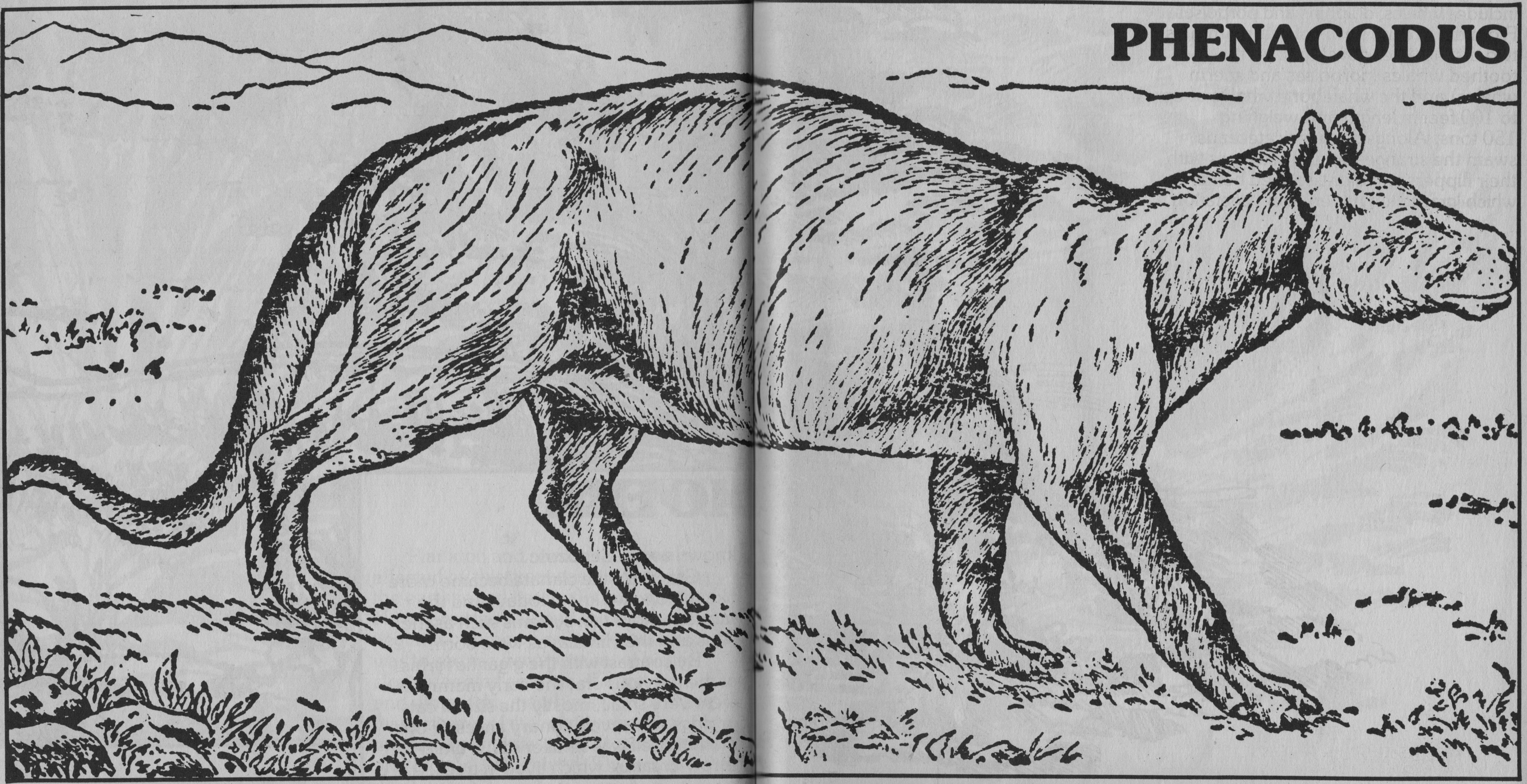
They were helped, too, by the weather, which was temperate in the early part of the Cenozoic, and the abundance of food in the rich vegetation which covered a great part of the earth's surface.

The changes that marked the beginning of the Cenozoic era were favourable to mammals; and one of the most striking and important differences between the mammals and the reptiles, was their ability to learn.

"Not that any of the mammals have learned that much," said the Doctor pointedly. "At least not compared with some of the more advanced intelligences in the Universe. But it is a great deal more than any of the earth reptiles could have done."

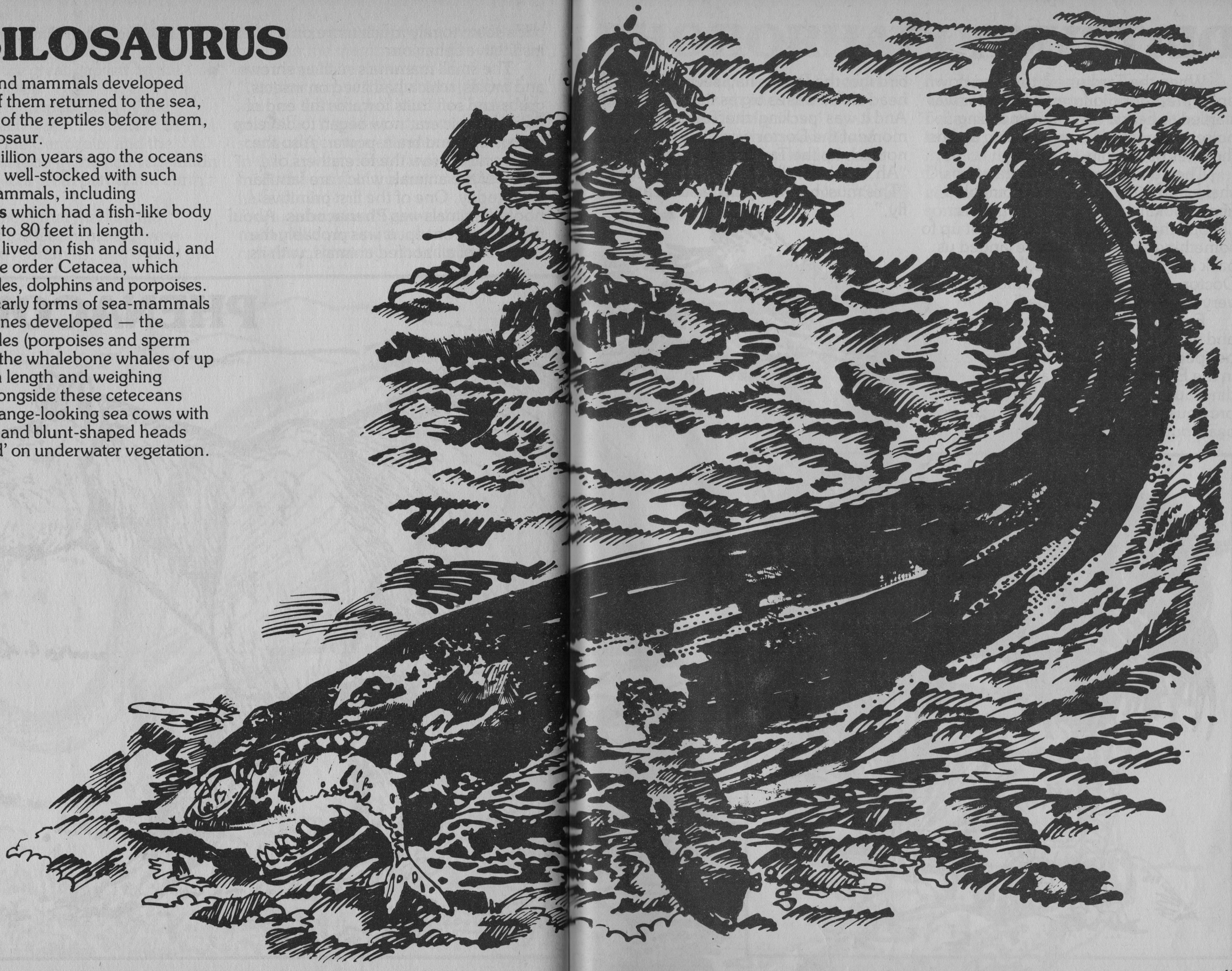
From generation to generation the mammalian brain has shown that it is capable of growing. But reptiles and birds seem to rely much more on instinctive behaviour.

The small mammals such as shrews and moles, which had lived on insects, grubs and soft fruits towards the end of the Mesozoic era, now began to develop both in size and brain-power. Also the Cenozoic era saw the forefathers of many of the animals which are familiar to us today. One of the first primitive hoofed animals was **Phenacodus**. About the size of a sheep, it was probably the ancestor of all hoofed animals, with its long low skull, short limbs and feet with five toes.



BASILOSAURUS

As the land mammals developed one or two of them returned to the sea, as had some of the reptiles before them, like the plesiosaur. About fifty million years ago the oceans were already well-stocked with such sea-going mammals, including **Basilosaurus** which had a fish-like body and grew up to 80 feet in length. Basilosaurus lived on fish and squid, and belongs to the order Cetacea, which includes whales, dolphins and porpoises. From these early forms of sea-mammals two distinct lines developed — the toothed whales (porpoises and sperm whales) and the whalebone whales of up to 100 feet in length and weighing 150 tons. Alongside these ceteceans swam the strange-looking sea cows with their flippers and blunt-shaped heads which 'grazed' on underwater vegetation.



DIATRYMA

When the Tardis next touched down on its prehistoric journey the Doctor was startled to hear a very loud knocking noise apparently like rocks falling against the sides of the ship.

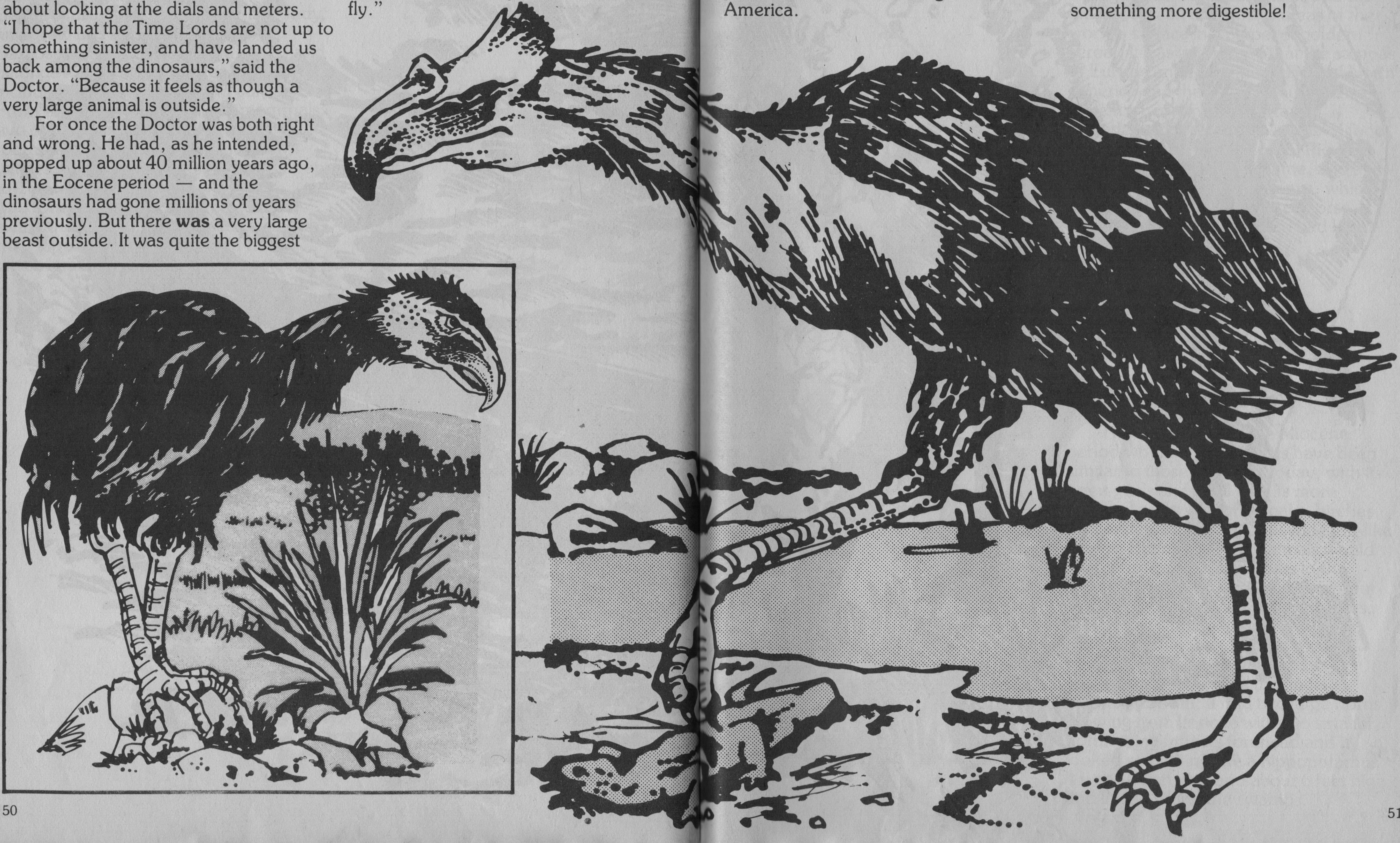
Then the entire Tardis began to shake and rattle. The Doctor bumbled about looking at the dials and meters. "I hope that the Time Lords are not up to something sinister, and have landed us back among the dinosaurs," said the Doctor. "Because it feels as though a very large animal is outside."

For once the Doctor was both right and wrong. He had, as he intended, popped up about 40 million years ago, in the Eocene period — and the dinosaurs had gone millions of years previously. But there **was** a very large beast outside. It was quite the biggest bird that the Doctor had seen, and its head alone was as big as that of a horse! And it was 'pecking' the Tardis. For a moment the Doctor wondered if it might not pick up the Tardis and fly off with it. "Ah, no, how silly of me," he tut-tutted. "This must be **Diatryma**, and it **can't** fly."

PHORORHACOS

Diatryma certainly was huge. It stood nearly ten foot high and it had a very powerful hooked beak.
Diatryma inhabited the grasslands of North America. Another kind of great bird called **Phororhacos** lived in the plains and foothills of Patagonia in South America.

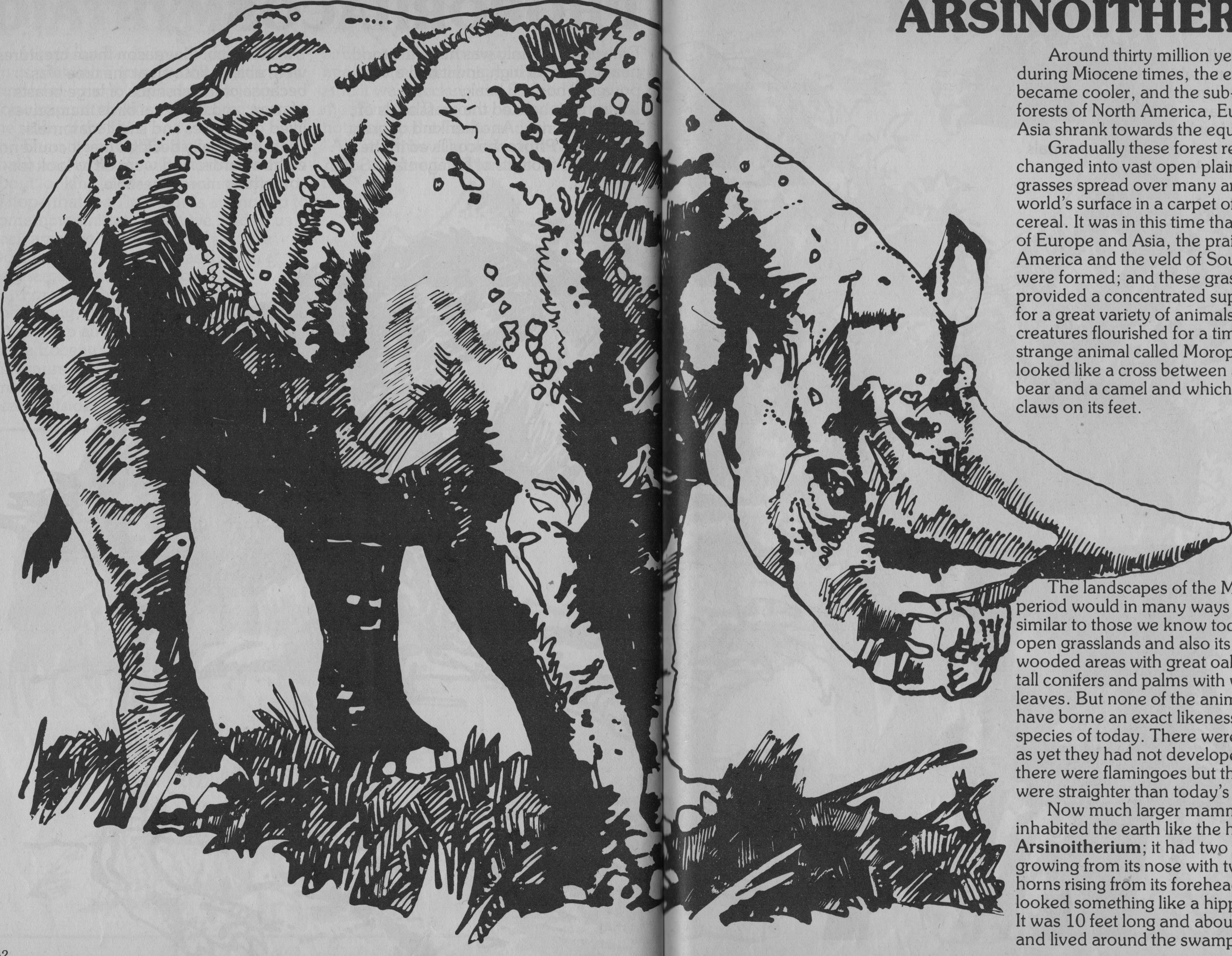
No doubt the reason these creatures were able to flourish at the time was because of the absence of large beasts of prey; and the great birds themselves lived on reptiles and small mammals. Diatryma finally decided that it could not eat the Tardis, and went off to look for something more digestible!



ARSINOITHERIUM

Around thirty million years ago, during Miocene times, the earth's climate became cooler, and the sub-tropical forests of North America, Europe and Asia shrank towards the equator.

Gradually these forest regions changed into vast open plains and the grasses spread over many areas of the world's surface in a carpet of golden cereal. It was in this time that the steppes of Europe and Asia, the prairies of North America and the veld of South Africa were formed; and these grasses provided a concentrated supply of food for a great variety of animals. Pig-like creatures flourished for a time, and a strange animal called Moropus, which looked like a cross between a horse, a bear and a camel and which had long claws on its feet.

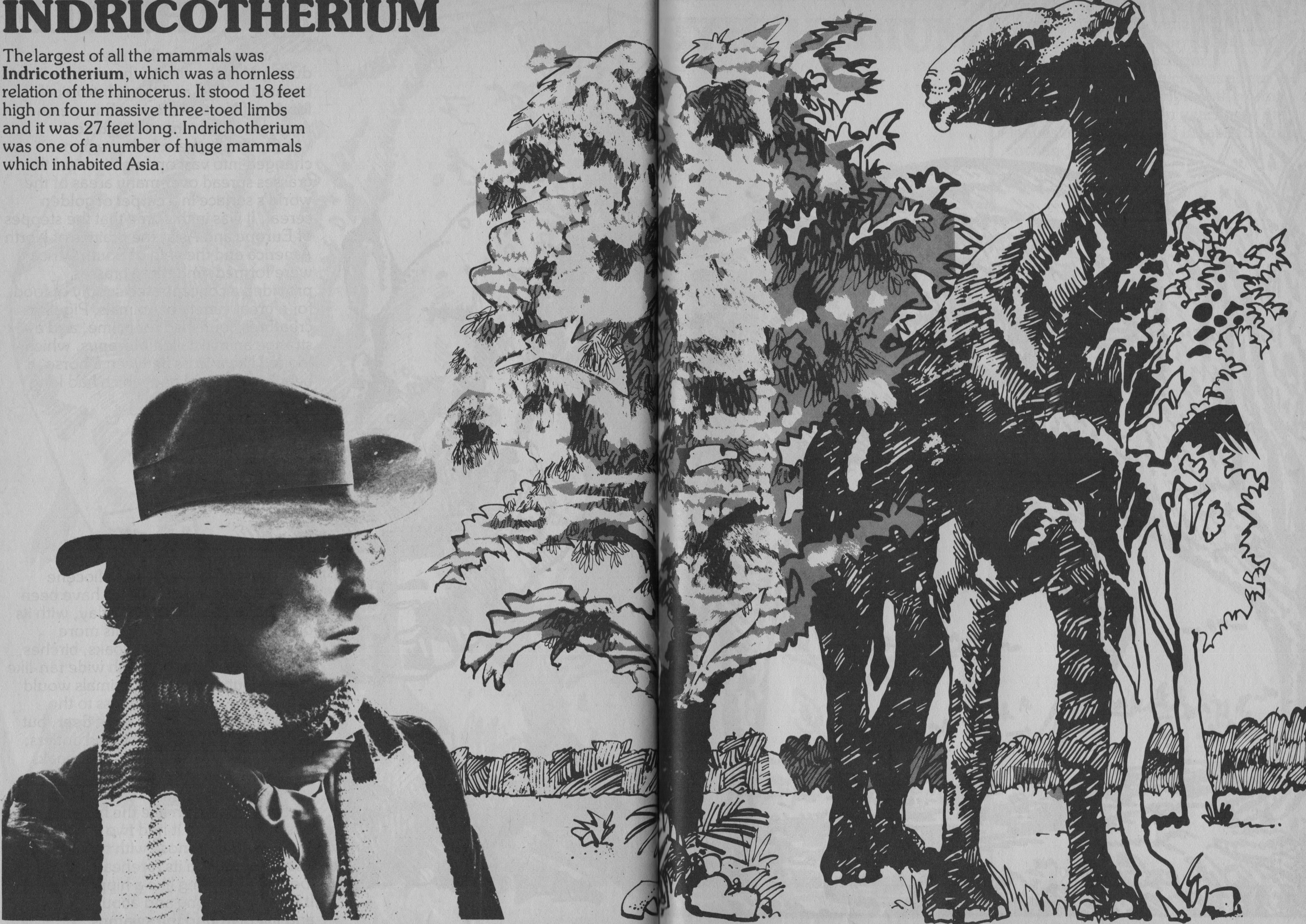


The landscapes of the Miocene period would in many ways have been similar to those we know today, with its open grasslands and also its more wooded areas with great oaks, birches, tall conifers and palms with wide fan-like leaves. But none of the animals would have borne an exact likeness to the species of today. There were deer, but as yet they had not developed antlers; there were flamingoes but their beaks were straighter than today's species.

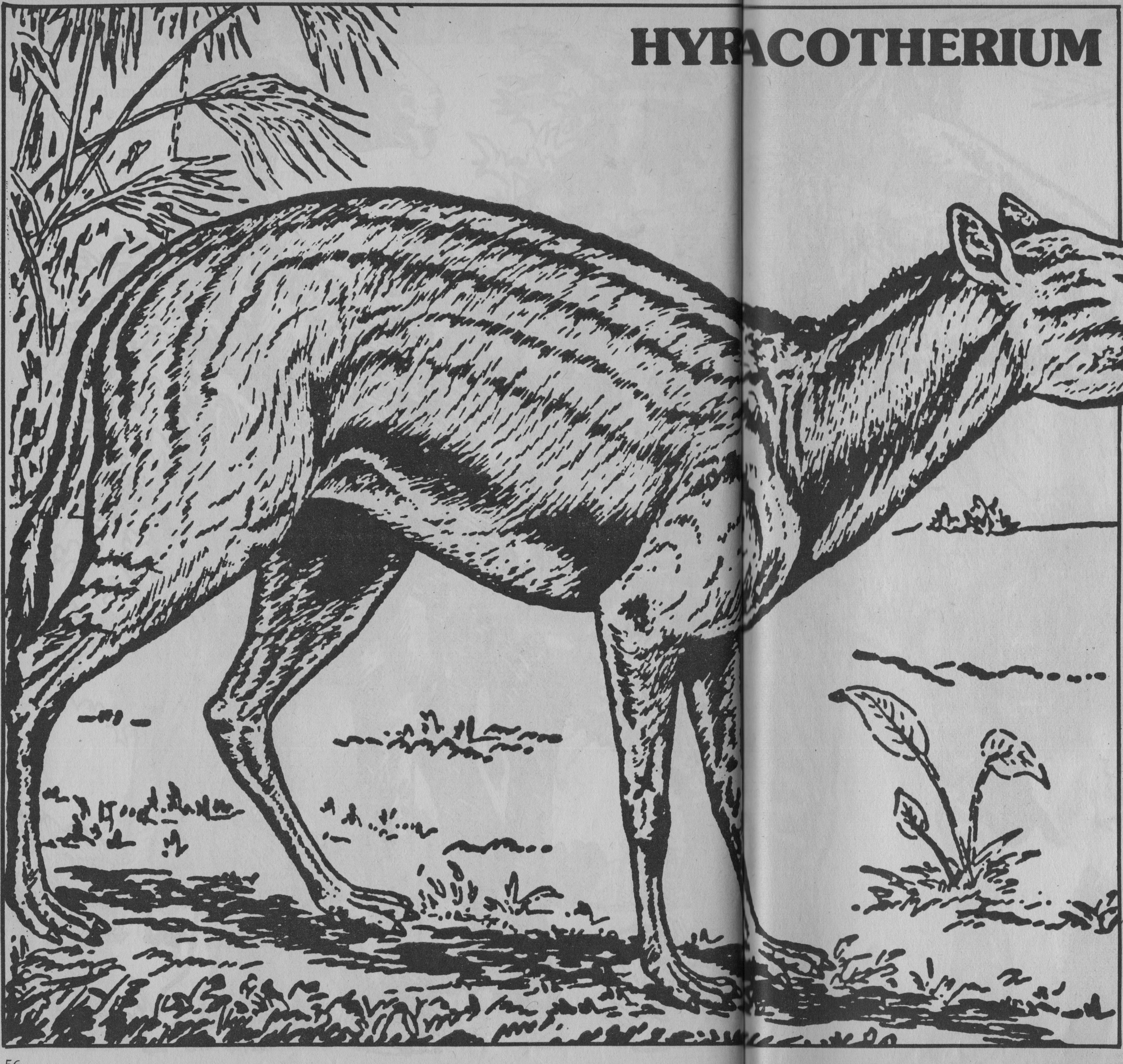
Now much larger mammals inhabited the earth like the huge **Arsinoitherium**; it had two large horns growing from its nose with two smaller horns rising from its forehead and it looked something like a hippopotamus. It was 10 feet long and about 6 feet high, and lived around the swamps.

INDRICOTHERIUM

The largest of all the mammals was **Indricotherium**, which was a hornless relation of the rhinocerus. It stood 18 feet high on four massive three-toed limbs and it was 27 feet long. Indrichotherium was one of a number of huge mammals which inhabited Asia.



HYRACOTHERIUM

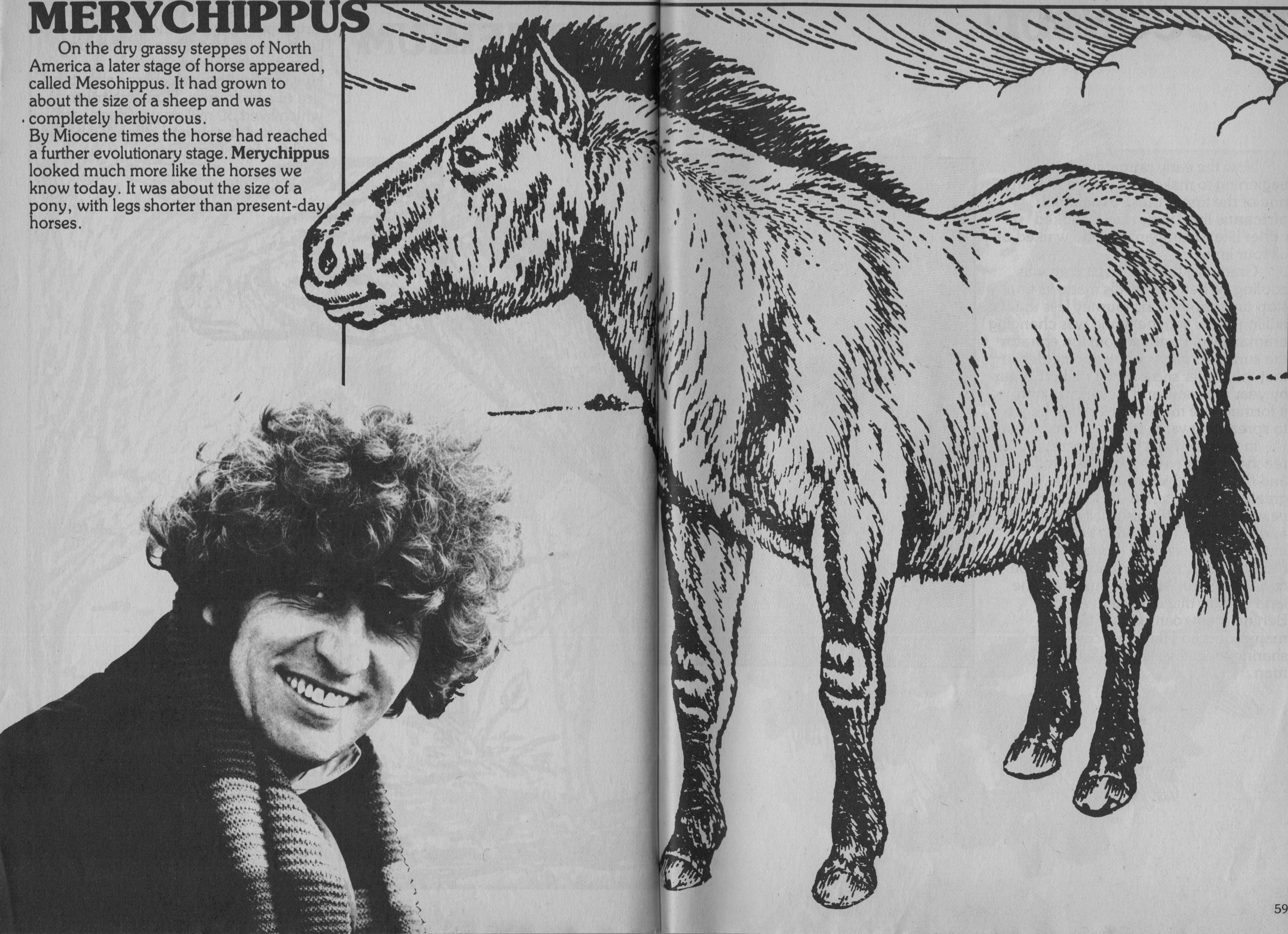


The horse, too, was gradually developing along a variety of evolutionary lines, having started on its long road from its primitive ancestor, **Hyracotherium**, which was about the size of a fox-terrier. Hyracotherium, which lived 50 million years ago, ate leaves and shoots and inhabited dense lowland forests.

MERYCHIPPUS

On the dry grassy steppes of North America a later stage of horse appeared, called Mesohippus. It had grown to about the size of a sheep and was completely herbivorous.

By Miocene times the horse had reached a further evolutionary stage. **Merychippus** looked much more like the horses we know today. It was about the size of a pony, with legs shorter than present-day horses.

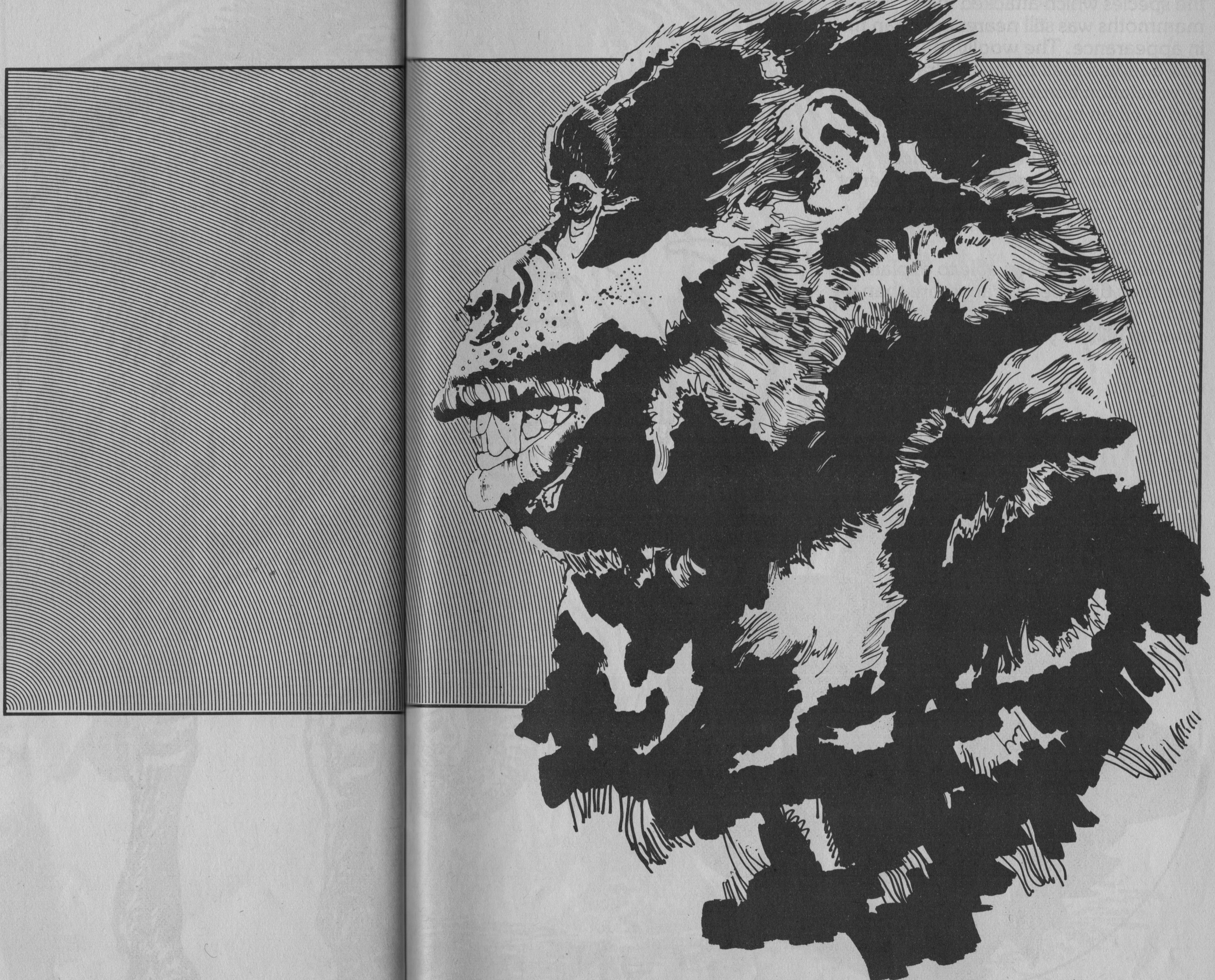


PROCONSUL

Now the early primates were beginning to make an appearance, and one of the first of these **Proconsul africanus** lived in Kenya. It looked rather like a chimpanzee, and walked on all four limbs.

Gradually the earth's climate was cooling. When the Tardis made its final stop on its prehistoric journey less than a million years ago the world was changing dramatically. Furthest from the equator the summers grew colder and colder so that the winter snow never melted. Year by year the snow and ice built up until it formed one massive sheet that began to spread outwards from the two poles.

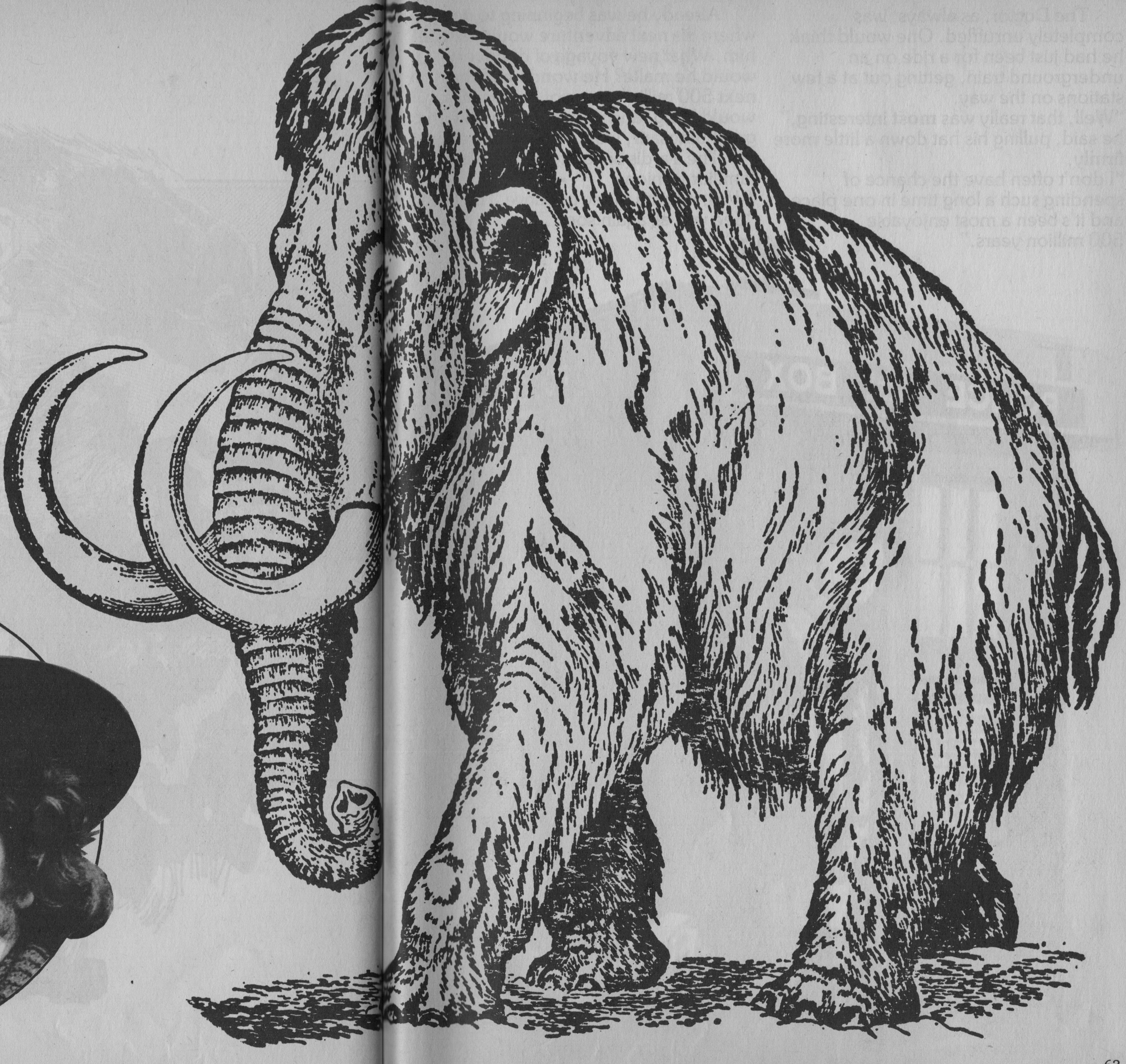
In the Northern Hemisphere, the ice reached as far as the Thames, Holland and the Carpathian mountains at its greatest extent; but in the last million years of the earth's history it has shrunk and then expanded many times.
In the cold phases the hippopotamuses, rhinoceruses and elephants of Europe and Asia were able to escape over the land bridges that existed to Africa. Behind them roamed the mighty mammoths and the large cave-bears, sharing their environment with early man.



MAMMOTH

Both these creatures were hunted by the forebears of homo sapiens, though the species which attacked the mammoths was still nearer ape than man in appearance. The woolly **mammoth** had adapted itself to the tundra, the area of vegetation bordering the ice-sheets, and lived on twigs of conifers, willows, birches and a variety of plants. The last of the mammoths became extinct 10,000 years ago, as did many other of the larger animals like the giant bison, elks with 12 foot-long antlers and the woolly rhinocerus.

Nobody has been able to explain why they disappeared anymore than we know why the dinosaurs vanished seventy million years before them.



The Doctor, as always, was completely unruffled. One would think he had just been for a ride on an underground train, getting out at a few stations on the way.

"Well, that really was **most** interesting," he said, pulling his hat down a little more firmly.

"I don't often have the chance of spending such a long time in one place, and it's been a most enjoyable 500 million years."

Already he was beginning to wonder where his next adventure would take him. What new voyage of discovery would he make? He wondered what the next 500 million years of earth's history would bring, and whether man, like the great dinosaur, would by then be extinct.

The Tardis began to oscillate in that familiar fashion.

"Well, it's time to say goodbye," he called. "See you all again soon."

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